The relationship between organisational culture and occupational health

by

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DECLARATION

I, Mari-lize Nel, student number 42501555, declare that “The relationship between organisational culture and occupational health” is my own work, and that all the sources that I have used or have quoted from have been indicated and acknowledged by means of complete references.

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DEDICATION

I dedicate this study to my parents, the late Johan Jordaan, and my mother, Judy Jordaan. Mother - thank you for your unconditional love, prayers and support.

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SUMMARY

The aim of the study was to determine whether there is a relationship between organisational culture and occupational health. The General Health Questionnaire and the South African Culture Instruments were used for this purpose. Structural equation modelling (SEM) was used for this purpose. The study focused on clarifying the two concepts and their impact on the organisation. The effects of general health factors were determined in the organisation under investigation. The existing organisational culture was also investigated. In conclusion, the assumption that occupational health can have an impact on organisational health, or vice versa, was confirmed.

Key terms:

Organisational culture, occupational health, health symptoms, structural equation modelling (SEM), regression analysis, correlation analysis, fix indexes.

CHAPTER 1

OVERVIEW OF THE RESEARCH

1.2 INTRODUCTION

This chapter deals with the background to and motivation for the research, as well as the central problems to be addressed. This will be followed by a discussion of the theoretical and empirical objectives of the research, the paradigm perspective and the research design and methodology. The chapter concludes with the layout of the study and a chapter summary.

1.2 BACKGROUND TO AND MOTIVATION FOR THE RESEARCH

In April 1994, the world witnessed the Republic of South Africa's first democratic election. The demise of apartheid heralded a series of changes, including dramatic shifts in organisations. Other changes were political, such as the "empowerment" policy, comprising two main pillars, namely black economic empowerment (BEE) and affirmative action (AA), which rely on the Equality employment Act (Martins & Van der Ohe, 2003). Influences, internal or external, can force organisations to adapt or change their current status. According to Kinnear and Roodt (1998), external forces stimulate change more than internal forces. It is therefore essential for organisations to identify organisational culture issues in order to promote competitiveness.

Organisational culture is learnt as members devise strategies to solve problems of external adaptation, such as competing in the global market or effecting internal integration and how best to coordinate and enhance processes and people inside the organisation (Lawson & Shen, 1998). Hence adaptation requires skilled managers with a commitment to creating learning organisations seeking excellence, focusing on consumers and working with health professionals. Workers, however, have to take on new roles and responsibilities in the ever-changing working environment. Turner (Hewison, 2004) explains that it is essential for managers to discover more about the dynamics of the organisation to assist with the adaption process.

Organisations and managers that endeavour to improve require an in-depth understanding of systems. Ackoff (1971, p.662) defines a system as "a set of interrelated elements. Thus a system is an entity which is composed of at least two elements and a relation that holds between each of its elements and at least one other element in the set. Each of a system's elements is connected to every other element, directly or indirectly". Ackoff (1981) explains further that the behaviour of each element of a system has an effect on the behaviour of the whole. A key element of a system is that its performance depends as much on how its parts interact as on how they act independently of one another. The aim is to bring people together to help them understand how to interact as a whole.

According to Cummings and Worley (2005), organisational culture change is a common form of organisational transformation, as a growing number of managers appreciate the power of organisational culture to shape the beliefs and actions of the employees. These authors also posit that a well-conceived and well-managed organisational culture, together with an effective business strategy, can mean the difference between success and failure in today's demanding environment.

1.3 PROBLEM STATEMENT

According to Peters and Waterman (Shaw, 1997), the dominance and coherence of culture have proven to be an essential quality of excellent companies. Moreover, the stronger the culture and the more it is directed towards the marketplace, the less need there is for policy manuals, organisation charts or detailed procedures and rules. In these effective companies, staff members on all levels, know what they are supposed to do in most situations because the handful of guiding values are crystal clear.

Pepper (1995) cites the following reasons for conducting organisational culture studies:

- Culture mandates the explicit focus on communication at all levels of the corporate hierarchy. As individuals articulate who they are in relation to one another in the organisation, shared understanding places people in identifiable subgroups.

- A focus on culture is a focus on the routine, everyday sense making that is the process of building a shared reality among organisational members. It is also a focus on the official, everyday contrived attempts to build identity and manage the relationships between organisational members.
- A cultural approach necessitates a focus largely ignored by the rational models of organising, one that questions the assumptions that bring underlying values and motives to the surface. An understanding of culture offers insights into leaders and managers. Cultures are real and have an impact on the organisation. Without an understanding of the culture, one does not have an understanding on the feelings, attitudes, expectations, values and assumptions of the workers.

Cummings and Worley (2005) explain that the elements of culture include artefacts, norms, values and basic assumptions and are more or less shaped by organisation members. Artefacts are the highest level of cultural manifestation. These are the visible symbols of the deeper levels of culture, such as norms, values and basic assumptions. These include observable behaviour such as preferred language, structures, systems, procedures and rules as well as the physical aspects of the organisation such as space or noise levels.

The next level of organisational culture awareness is norms that guide staff members to behave in a certain way in particular situations. These norms represent the unwritten rules of behaviour. The third level represents values. Values tell staff members what is important in an organisation and what merits their attention. The last level, namely basic assumptions, is the deepest level of culture awareness and can be defined as the assumptions that are taken for granted about how organisational problems should be solved. These basic assumptions tell members how to perceive, think and feel about aspects of an organisation. They are nonconfrontable and nondebatable assumptions about relating to the environment and about human nature, activity and relationships. Culture is a process of social learning; it is the outcome of prior choices about and experiences with strategy and organisation design (Cummings & Worley, 2005).

There has been some interface between the fields of psychology and occupational health. However, numerous developments have helped define a broader role for psychologists in the occupational safety and health field (Sauter & Hurrell, 1999).

Bringing psychologists into the occupational health psychology field has generated several interrelated developments such as the following:

- the growth and recognition of stress-related psychological disorders as a costly occupational health problem
- growing acceptance that psychosocial factors play a role in the etiology of emergent occupational safety and health problems
- recent and dramatic changes in the organisation of work that both foster stress and health and safety problems at work

However, occupational health such as stress in the workplace is not only a major problem for the individual but also for organisations and society. Stress can have adverse effects, primarily on health, both physical and mental. Orginska-Bulik (2005, p. 234) explains this as follows: “Stress is a complex dynamic process in which stressors, enduring health outcomes and modifying variables are all interrelated. Whether a stressor produces an enduring health outcome or not depends on the extent to which the person perceives the condition as stressful and responds to it. His or her perception and response are affected by a number of modifying variables, but mainly by his or her personal and social resources.”

According to Cummings and Worley (2005), stress refers to the reactions of people to their environment. It involves both physiological and psychological responses to environmental conditions, causing people to change or adjust their behaviour. Research dealing with the two concepts of organisational culture and occupational health could not be found as a motivation to conduct this study.

The following questions formulated from the above-mentioned problem statement directed the study:

- How is organisational culture conceptualised in the literature?
- How do general health factors manifest in the organisation?
- What is the theoretical relationship between organisational culture and occupational health?

- Is there an empirical relationship between organisational culture and occupational health?

1.4 AIMS OF THE RESEARCH

1.4.1 General aims of the research

The general aim of the study was to determine whether there is a statistical relationship between organisational culture and occupational health. The secondary aim was to determine whether general health factors can be associated with different dimensions of organisational culture.

1.4.2 Specific aims of the research

1.4.2.1 Specific aims relating to the literature review

These were as follows:

- to conceptualise organisational culture
- to conceptualise occupational health
- to discuss the theoretical relationship between organisational culture and occupational health.

1.4.2.2 The specific aims relating to the empirical study

These were as follows:

- to determine the existing organisation culture in the organisation
- to determine health-related symptoms in the organisation
- to determine whether there is a statistical relationship between organisational culture and occupational health
- to make recommendations for future research.

1.5 THE RESEARCH MODEL

According to Mouton and Marais (1992, p.7), “social sciences research is a collaborative human activity in which social reality is studies objectively with the aim of gaining a valid understanding of it”. The dimensions of research in the social sciences are sociological, ontological, teleological, epistemological and methodological (Mouton & Marais, 1992).

- From the sociological perspective, the researcher is interested in highlighting the social nature of research as a typical human activity – as praxis.
- The ontological dimension emphasises that research always has an objective, that is, empirical and nonempirical. Hence this dimension investigates the reality in research in the social sciences.
- Research in the teleological dimension is goal driven and purposive and focuses specifically on the human goals of understanding and gaining insight into and explaining a phenomenon.
- The epistemological dimension focuses on the fact that this goal of understanding should be further clarified in terms of what would be regarded as “proper” or “good” understanding.
- Lastly, the methodological dimension of research refers to the ways in which these various ideals may be attained (Mouton & Marais, 1992).

In line with the above discussion, the proposed research was based on the epistemological perspective. According to Mouton and Marais (1992), it is accepted that the epistemic idea ought to involve generations of research findings, which approximate, as closely as possible, the true state of affairs. At this level, one is more inclined to talk about the validity, demonstrability, reliability or replicability of the research findings.

According to Mouton and Marais (1992), a model should be used to interpret the research process. To this end, in the current study, an integrated model for social sciences was used to systematise the previously discussed dimension. The model can be described as a systems theoretical model. This model thus distinguishes between three subsystems, which interact with one another and with the research domain as defined in a specific discipline, namely:

- the intellectual climate of a specific discipline
- the market of intellectual resources in each discipline
- the research process itself.

1.6 PARADIGM PERSPECTIVE OF RESEARCH

1.6.1 The intellectual climate

According to Mouton and Marais (1992, p.21), intellectual climate refers to the "set of beliefs, values, assumptions which, because of their origin can be usually be traced to non-scientific context, and are not directly related to the theoretical goals of the practise of scientific research". Industrial psychology has emerged as an applied field of psychology aimed at increasing employee efficiency by improving employee well-being, that is, applying psychological knowledge to the management of work and human resources (Venter & Barkhuizen, 2005).

Furthermore, according to Cascio (2001) industrial/organisational psychology can be defined as a division of psychology concerned with the study of human behaviour relating to work, organisations and productivity. The proposed study forms part of the field of organisational psychology and can be explained as being "concerned with the organisation as a system involving individuals, groups and the structure of the organisation. The basic aims are fostering work adjustment, satisfaction, productivity as well as organisational efficiency" (Bergh & Theron, 2001, p. 17). The paradigm of psychology is humanistic and focuses on the positive aspects of conscious mental activity, incorporating humans' striving for psychological growth, self-actualisation and autonomy. It should also be noted that an organisation can be viewed from a systems perspective.

According to Bergh and Theron (2001), the systems perspective considers all the possible interactions between persons and groups, the relationships between persons and groups and their relatedness to other contexts both inside and outside the organisation. The individual as a self-system brings a unique frame of reference to the work organisation. The personality of an individual comprises behavioural patterns or relationships styles formed by learning and experiential processes. This will determine the relationship with the organisation and colleagues. The organisation, in turn, has specific and characteristic inputs because of its culture and influential hierarchical system.

These inputs from the organisation and individual will result in certain consequences for both. The interaction between the individual and organisation is monitored by feedback or control systems. The latter determines the extent to which the individual rejects or accepts the outputs and consequences. It should be noted that there are certain dominant influential factors in both the individual and the organisation, which stem from their respective behavioural and value systems. This will determine the extent to which individuals and organisations are selective in their interactions, observations and acceptance, to gain the maximum benefit from events and situations. The influences are thus from different environments. It often happens that boundaries and interactions between individuals, organisations and the environment are not clear because an individual may be part of various systems (Bergh & Theron, 2001).

1.6.2 The market of intellectual resources

According to Mouton and Marais (1992, p.22) the “market of intellectual resources refers to the collections of beliefs which has a direct bearing upon the epistemic status of scientific statements, i.e. to the nature and structure of phenomena, and methodological beliefs concerning the nature and structure of the research process”. Theoretical beliefs are those about which testable statements on social phenomena are made and may be regarded as assertions about the “what” (descriptive) and “why” (interpretative) aspects of human behaviour.

The following model was used to direct the study:

An organisational profile survey instrument and model developed by Martins (1989) for use in South Africa was used as the basis for the study. Martins’ model is based on the interaction between the organisational subsystem, external environment, internal systems and the dimensions of culture and occupational health which are also accommodated in the theoretical model.

1.7 RESEARCH DESIGN

A research design, according to Mouton (2001), is a plan or blueprint of how one intends conducting the research. The proposed study was exploratory. Mouton and Marais (1992) describe the aims of exploratory research as follows:

- to gain knowledge of a certain domain
- to be used as a preliminary study for further structured research
- to explain concepts
- to prioritise for further research
- to formulate hypotheses for further research.

1.7.1 Research approach

According to Mouton and Marais (1992), the quantitative research approach in social science can be broadly defined as research that is more formalised and controlled. The quantitative category includes experiments, surveys and content analyses (De Vos, Strydom, Fouché & Delport, 2002). The researcher in the current study used the survey approach to achieve the specific research aims.

1.7.2 Research method

The survey research method in this study involved the administration of the applicable questionnaires to respondents. According to Church and Waclawski (1998, p. 5), a survey is “a systematic process of data collection to quantitatively measure specific aspects of organisational members’ experience as they relate to work”.

1.7.3 Research participants or unit of analysis

One of the main aspects of a research project is the unit of analysis. The unit of analysis is the major entity that will be analysed in the study (Chambliss, 2009). In the current study, the surveys were distributed to approximately 420 staff members in the infrastructure technology environment. For the purpose of the study, individuals were the unit of analysis (Mouton, 2001).

1.7.4 Measuring instruments

For the purpose of the study, a questionnaire was use consisting out of three sections:

- A biographical questionnaire was used to ascertain the personal information needed for the statistical analysis of the data. The information that was needed included age, department, region, age, gender, racial group and length of service.
- The South African Culture Instrument (SACI) had been in use by organisations since 1989. This questionnaire as a quantitative measurement is usually supported with qualitative analysis such as interviews. The questionnaire assesses organisational culture in terms of leadership, objectives, management processes, employee needs and objectives, vision and mission, the external environment and diversity strategy, which a crucial factor because of South African employment equity standards that have to be adhered to (Martins & Von der Ohe, 2003).
- The General Health Questionnaire (GHQ-28) of Goldberg (1978) was developed to screen psychiatric disorders and measure factors such as somatic symptoms, anxiety and insomnia, social dysfunction and severe depression. Makowska, Merecz, Moscicka, and Kolosa (2002) adapted the original GHQ to the GHQ-28. For the purpose of this study, questions measuring "severe depression" were omitted because these factors fall under the scope of clinical psychology. The respondents rated themselves on a four-point severity scale, according to how they had recently experienced each GHQ item: "better than usual", "same as usual", “worse than usual” or “much worse than usual”. The GHQ-28 is a scaled version. The Likert scoring method is used to assign values of 0, 1, 2, and 3 for item severity. The different scales do not have an impact on the statistical analysis technique.

1.7.5 Research procedure

The research procedure will be briefly explained below and in detail in chapter 4.

1.7.5.1 Administration of and data collection for the questionnaire

For the purpose of the study, a proposal was submitted to the employer of the researcher in the infrastructure technology environment. After obtaining the approval of the Head of Human Resources, the researcher presented the proposal to the executive committee to explain the research purpose, measuring instruments, administration of the survey, the costs involved and the value of participating in the survey. The researcher then sent a cover letter via email to motivate the staff to participate in the surveys as well as to explain confidentiality and the value of participation. The link to the electronic measurement was included in the email.

1.7.5.2 Reliability and validity of the instruments

The evaluation of measurement instruments centres on two related issues, namely reliability and validity. Reliability can be defined as the consistency of test scores, whereas validity is defined as the degree to which inferences made on the basis of test scores are correct (Murphy & Davidshofer, 2005). The above-mentioned batteries had been shown to be valid and reliable. The reliability of both instruments was examined in the infrastructure technology environment.

1.7.5.3 Statistical analyses

The following statistical techniques were used in the research:

- Descriptive statistics can be described as summaries of numerical data that make them more easily interpretable, including the mean, variance, standard deviation, range standard error of the mean, kurtosis and skewness of a set of norm in particular (Colman, 2006).
- Exploratory factor analysis is a statistical procedure designed for situations in which links between the observed and latent variables are unknown or uncertain. The analysis proceeds, in an exploratory manner, to determine how and to what extent the observed variables are linked to their underlying factors (Byrne, 2001).

- The Cronbach alpha is a commonly used measure to test the extent to which multiple indicators for a latent variable belong together (Garson, 2009)
- Structural equation modelling (SEM) is the collection of statistical models for the analysis of multivariate data (Cudeck & Du Toit in Millsap & Maydeu-Olivares, 2009). The term “structural equation modelling” conveys two aspects of the procedure, namely (1) the casual processes under study are represented by a series of structural equations; and (2) these structural relations can be modelled pictorially to provide a clearer conceptualisation of the theory under investigation (Byrne, 2001). In this study, for SEM, AMOS 18 was used for the statistical analysis and it was conducted with the help of the SPPS-program (IBM SPSS V18).
- Multiple regression analysis is used to examine the relationship between a single dependent variable and a set of independent variables to best represent the relation in the population. The technique is used for both predictive and explanatory purposes in experimental and nonexperimental designs (Venter & Maxwell in Tinsley & Brown, 2000).

There are two types of variables, namely independent and dependent variables. In the case of a dependent variable, the researcher expects changes to occur. In other words, the dependent variable is the specific, measurable indicator that allows the researcher to evaluate any changes that might be produced in the study. The independent variable, however, is the strategy, specific techniques and procedures that the practitioner uses to change the system. It is crucial in both research and practice to use an independent variable that can be expected to have some effect on the dependent variable. Hence there should be a logical relationship between the independent and dependent variable (De Vos et al., 2002). For the purpose of this study, the variables were occupational health as the independent variable and organisational culture as the dependent variable.

1.8 RESEARCH METHODOLOGY

The methodology used in this study was applied in two phases:

1.8.1 Phase 1: literature review

The steps in the literature were as follows:

Step 1: review of and search for appropriate literature

Step 2: integration and description of information

Step 3: analysis of information

Step 4: summary and conclusion based on the information

1.8.2 Phase 2: empirical study

This phase entailed the use of the measurement batteries that were administered to the workers in different business units. The steps were as follows:

Step 1: performing the statistical analysis

Step 2: reporting the results

Step 3: analysing and interpreting the results

Step 4: drawing conclusions

Step 5: discussing the limitations of the research

Step 6: making recommendations

1.9 CHAPTER LAYOUT

The layout of the research is as follows:

Chapter 1: Overview of the research

Chapter 2: Organisational culture

Chapter 3: Occupational health

Chapter 4: The empirical research

Chapter 5: Results and findings of the study

Chapter 6: Conclusions, limitations and recommendations

1.10 CHAPTER SUMMARY

This chapter focused on the scientific orientation to the research. The background to and motivation for the research, the research problem, the aims, the paradigm perspective, the research design and method were explained. The chapter concluded with the chapter layout. In chapter 2, organisational culture will be discussed in more detail.

CHAPTER 2

ORGANISATIONAL CULTURE

2.1 INTRODUCTION

Chapter 1 dealt with the background to and motivation for the study and referred specifically to two main concepts, namely organisational culture and occupational health. This chapter will focus on the literature study of and key concepts relating to organisational culture.

2.2 BACKGROUND TO ORGANISATIONAL CULTURE

According to Schein (1990), business and management schools contributed to the field of organisational psychology because of concerns about understanding organisations and interorganisational relations. Hence concepts from sociology and anthropology began to influence the field. Research on organisational climate preceded studies of organisational culture and was derived from a confluence of field theory and the quantitative study of attitudes in organisations during the 1980s (Ashkanasy, Broadfood, & Falkus, 2000). Lewin and his research colleagues named their attempts to represent any particular social process as part of a larger context or field as field theory. According to this theory, group behaviour is a sophisticated set of symbolic interactions and forces that affect group structure and individual behaviour (Burnes, 2004).

During the 1960s and 1970s, the use of surveys to represent climate was the dominant way in which organisational studies were conducted and provided an overall sense of the social processes in the organisations. During the early 1980s, a combination of forces redirected scholars and organisational consultants to organisational culture as an alternative way of looking at organisational functioning. Culture has always been the domain of anthropology and influences the way of thinking holistically about systems of meaning, values and actions (Ashkanasy et al., 2000).

Smircich (1983) describes five perspectives of organisational cultures. The first perspective entails cross-cultural research, in which researchers study, inter alia, the cross-country variation in organisational variables, such as structure, leadership, decision making and organisational culture. The second perspective, namely corporate culture, deals with the culture of the organisation. Culture, as an aspect of the organisation, involves understanding the interdependence of several parts of the organisation in relation to environmental variables.

According to the third perspective, the cognitive, culture is regarded as a system of shared cognition or a system of beliefs, that is, a system of knowledge. In the symbolic perspective, an organisation is conceived of as a pattern of symbolic discourse. The organisation needs to read, decipher and interpret symbols in order to be understood. Events and patterns of action have a deeper symbolic meaning than their direct instrumental intention. In the fifth perspective, namely the structural and psychodynamic view, culture is seen as the manifestation or expression of unconscious psychological processes. From this perspective, organisational forms and practices are understood as projections of unconscious processes and are analysed with reference to the dynamic interaction between out-of-awareness processes and their conscious manifestations (Smircich, 1983).

2.3 DEFINING ORGANISATIONAL CULTURE

A review of literature studies on culture has identified the two major disciplinary foundations of organisation culture, namely the sociological foundation (organisations have cultures) and the anthropological culture (organisations are cultures). Researchers agree that the concept of culture refers to the values, underlying assumptions, expectations and definitions that characterise organisations and staff (Cameron & Quinn, 2011). Most researchers believe that organisational culture is a vital social characteristic that influences organisational, group and individual behaviour (Hartnell, Ou, & Kinicki, 2011).

Schein (1999, p. 24) defines culture as “the learned, shared, tacit assumptions on which people base their daily behaviour” which exist at several levels, namely artefacts, espoused values and shared tacit assumptions. Jex (2002) concurs with Schein and states that organisational culture is much easier to experience than it is to define. Culture can be regarded as the “view of the world” according to which the members of the organisation operate. The organisational culture is the “lens” through which the employees learn to interpret the environment.

Martin (Cummings & Worley, 2005) explains that culture can be viewed from an integrated, differentiated or fragmented perspective. The integrated view focuses on culture as an organisationally shared phenomenon; it represents a stable and coherent set of beliefs about the organisation and its environment. The integrated view, however, argues that culture is not monolithic, but should be seen as subcultures that exist through the organisation. While each subculture is locally stable and shared, there is much that is different across the subcultures. The last view, namely the fragmented perspective, holds that culture is always changing and is dominated by ambiguity and paradox. Schein (1987 b, p. 262) states the following: “Organisational culture is the pattern of basic assumptions that a given group has invented, discovered, or developed in learning to cope with problems of external adaptation and internal integration, and that have worked well enough to be considered valid, and therefore, to be taught to new members as the correct way to perceive, think and feel in relations to those problems.”

The following definition was used for the purpose of the study as it defines the study adequately: “Organisational culture is an integrated pattern of behaviour, which is unique to a particular organisation and which originated as a result of the survival process and interaction with its environment. Culture directs the organisation to goal attainment. Newly appointed employees must be taught what the correct way of behaving is” (Martins in Martins & Coetzee, 2007, p. 21).

2.4 IMPORTANCE OF ORGANISATIONAL CULTURE

According to Teegarden, Hinden, and Sturm (2011), by describing and understanding organisational culture, an organisation will be able to successfully

- orient new staff members as board members
- identify better leadership matches
- better understand and define the theory of change in the organisation
- develop more effective strategies
- market and communicate more effectively
- make successful choices about restructuring or merges.

Schneider (1994, p. 15), explains that organisational culture is important for the following reasons:

- to provide consistency for an organisation and its people
- to provide order and structure for activity in an organisation
- to establish an internal way of life for people by
- providing boundaries and ground rules
- establishing communication patterns
- establishing membership criteria
- to determine the conditions for internal effectiveness by
- setting the conditions for reward and punishment
- setting expectations and priorities
- determining the nature and use of power
- to strongly influence how and why the organisation is structured
- to set the patterns for internal relationships between people
- to define effective and ineffective performance
- to fix an organisational approach to management
- to limit strategy

- to play a fundamental role in an organisation's productivity
- to parallel individual character.

Organisational culture also plays a role in external and internal adaptation. External adaptation involves assessing the tasks to be completed, the methods used to achieve the goals and ways of coping with pressure or failure. Staff will thus be able to use shared experiences or common developed views to help guide them through their daily activities. Internal adaptation, however, refers to the way the organisation deals with the creation of a collective identity and finding ways of matching methods of working and living together (French, Rayner, Rees, & Rumbles, 2008).

2.5 CULTURE MODELS AND DIMENSIONS

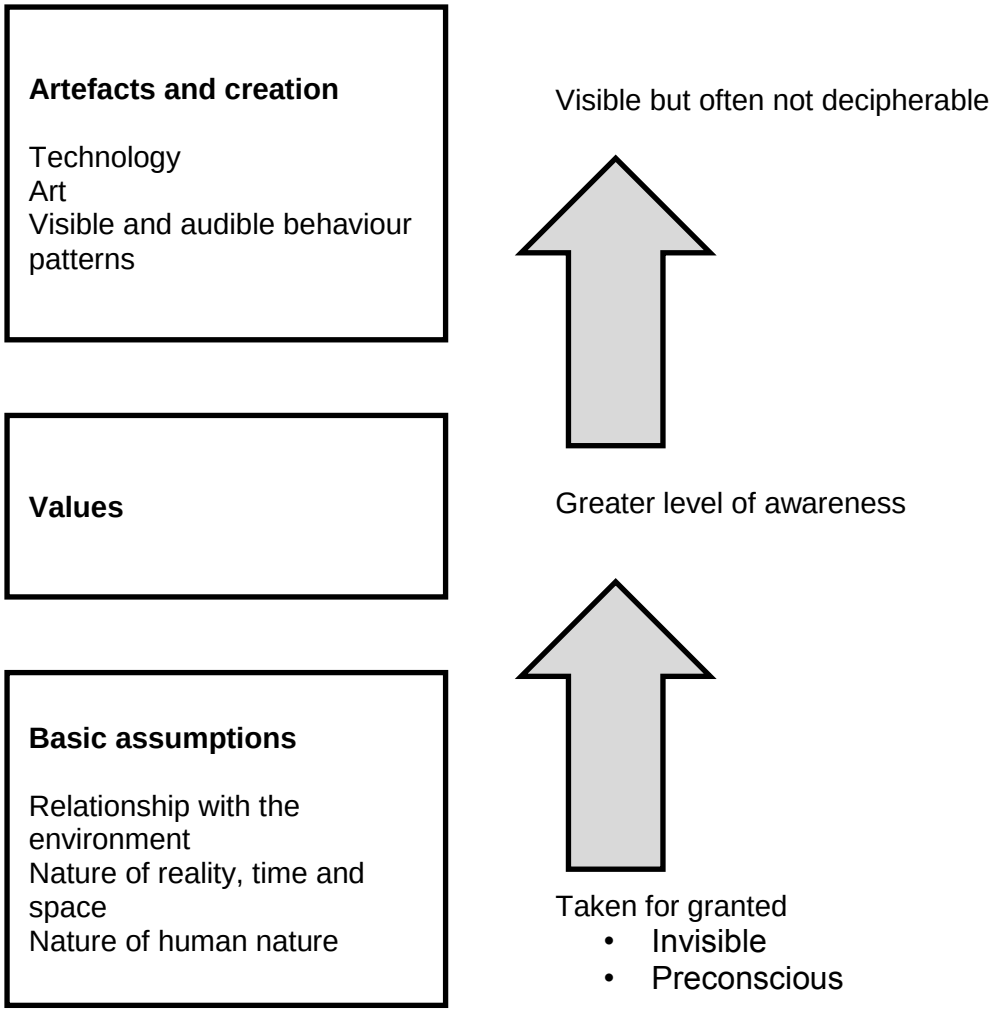
One of the reasons for the existence of so many dimensions and models is the fact that organisational culture is extremely broad and exclusive in scope. No framework is comprehensive, and no framework can be argued to be right while others are wrong. Instead, the most appropriate framework should be based on empirical evidence (Cameron & Quinn, 2011).

2.5.1 Schein's perspective

Schein (1992, p. 12) defines the culture of a group as "a pattern of shared basic assumptions that the group learned as it solved its problems of external adaption and internal integration, that has been considered valid, and therefore, to be taught to new members as the correct way to perceive, think, and feel in relation to those problems." Furthermore, Van Muijen (1998) explains that the assumptions in Schein's definition tend to be nonconfrontable, nondebatable and extremely powerful determinants of human behaviour and these assumptions help an organisation to adapt or cope with a changing environment.

FIGURE 2.1

SCHEIN'S LEVELS OF CULTURE AND THEIR INTERACTION



Source: Adapted from Schein (1987, p. 263)

Schein (1987 a) suggests three levels of organisational culture (figure 2.1). The levels of the model can be seen as an onion. The outer level contains the most visible level of culture, namely artefacts, technology and behavioural patterns. In this level, status systems, logos, material outputs, language and the patterns of behaviour will be visible. The second layer consists of the values of the organisation or what is deemed right and wrong in certain situations. The third layer consists of the basic assumptions that are unconscious and difficult to change (Van Muijen, 1998).

To analyse cultural paradigms, one needs to set logical categories in order to study the assumptions. The basic underlying assumptions around which cultural paradigms form are as follows:

- *The organisation's relationship to its environment*. Reflecting even more basic assumptions about the relationship of humanity to nature, one can assess whether the key members of the organisation view the relationship as one of dominance, submission, harmonising or finding an appropriate niche.
- *The nature of reality and truth*. This involves the linguistic and behavioural rules that define what is "real" and what is not, what is a "fact", how truth is ultimately to be determined, and whether truth is "revealed" or "discovered"; the basic concepts of time as linear or cyclical, monochronic or polochronic; basic concepts such as space as limited or infinite and property as communal or individual; and so forth.
- *The nature of human nature*. What does it mean to be "human" and what attributes are considered intrinsic or ultimate? Is human nature good, evil or neutral? Are human beings perfectible or not? Which is better, Theory X or Theory Y?
- *The nature of human activity*. What is the "right" thing for human beings to do, on the basis of the above assumptions about reality, the environment and human nature – to be active, passive, self-developmental, fatalistic or what? What is work and what is play?
- *The nature of human relationships*. What is considered to be the "right" way for people to relate to each other, to distribute power and love? Is life cooperative or competitive; individualistic, group collaborative or communal, based on traditional linear authority, law or charisma or what? (Van Muijen, 1998).

2.5.2 Hofstede's dimensions

The four dimensions of national culture (Hofstede, 1996) are as follows:

- *Individualism versus collectivism*. The fundamental issue involved is the relationship between an individual and his or her fellow individuals.

The emphasis is on self-interest or the interest of immediate family and this is made possible by a large amount of freedom that such individuals perceive from society. However, collectivism refers to a society in which the ties are extremely strong. In this case, people are born into collectivities or groups, which may be their extended family, tribe or village. People are supposed to look after the interests of the group and not have opinions and beliefs that differ from those of the tribe. In return, the tribe will look after the ingroup, in exchange for loyalty (Furnham, 1997). The individualistic and collectivist societies are both seen as integrated wholes, but the former is loosely integrated and the latter tightly integrated.

- *Large or small power distance*. The fundamental issue is how society deals with the fact that people are unequal. People are unequal because of differences in their physical and intellectual capacities. Some societies allow inequalities to grow into inequalities of power and wealth, whereas others try to play down inequalities in power and wealth. All societies are unequal, some more than others. In organisations, the level of power distance is related to the degree of centralisation of authority and of autocratic leadership.
- *Strong or weak uncertainty avoidance*. In this dimension, the issue involves how a society deals with the fact that time is caught in the reality of past, present and future and we have to live with uncertainty as we do not know what the future may hold. Some societies socialise their members to accept each day as it comes. This implies that they take risk easily and do not work as hard as they should. Uncertainty avoidance societies will be relatively tolerant of behaviour and opinions that differ from their own because they do not feel threatened. Strong uncertainty avoidance societies, however, try to beat the future, but are characterised by higher levels of anxiety, which manifest in nervousness, emotionality and aggressiveness.
- *Masculinity versus femininity*. This dimension refers to the division of roles between the sexes in society. Human societies through the ages and the world have associated certain roles with men only or women only. All social role divisions are more or less arbitrary, and what is seen as a typical task for men or for women can vary from one society to the next. Hofstede referred to those societies with a maximised social sex role division as masculine and

those with a relatively small social sex role division as feminine. In masculine societies, the traditional masculine social values permeate the whole society. In feminine societies, the dominant values, for both men and women, are those associated with the female role. Furnham (1997) goes on to say that the dominant values in the masculine society are success, money and things, while in the feminine society, caring for others and quality for life are important.

Hofstede (1996) explains that “management” and “organisations” are more culturally dependent than perceived. This is because management and organisations do not consist of making or moving tangible objects, but rather manipulating symbols which have meaning for the people who are managed or organised.

2.5.3 Kotter and Heskett's model

Effective organisations are able to evolve their practices around a small number of high-level core values and assumptions that do not change. They suggest that changes needs to be made to existing cultural assumptions, instead of creating a new culture. The goal is to link current business themes to future business practices (Kotter & Heskett, 1992).

Kotter and Heskett (1992) describe organisational culture as having two levels that differ in terms of their visibility and resistance to change. At the deepest and thus less visible level, culture refers to values that are shared by people in a group that tend to persist over time even when the group or membership changes. Culture at this level may be difficult to change, partly because group members are often unaware of many of the values that bind them together. At the more visible level, culture represents the behavioural patterns or styles of an organisation that new employees are automatically encouraged to follow by their fellow employees. Each level of the culture has a natural tendency to influence the other. This is especially applicable in terms of shared values influencing a group’s behaviour. Hence causality can flow in the other direction because behaviour and practises can influence values.

Organisational culture in all firms has multiple cultures. These cultures are usually formed by different functional groupings or geographical locations. This might lead to hundreds of different subcultures.

FIGURE 2.2

CULTURE IN ORGANISATIONS

Invisible	Shared values: Important concerns and goals that are shared by most of the people in a group, that tend to shape group behaviour and that often persist over time even with changes to group membership.	**Harder to change**
Visible	Group behaviour norms: Common or pervasive ways of acting that are found in a group and that persist because group members tend to behave in ways that teach these practices (as well as shared values) to new members, rewarding those that fit in and sanctioning those that do not.	**Easier to change**

Source: Adapted from Heskett & Kotter (1992, p. 5)

2.5.4 Denison's model

This model is unique in the sense that it is rooted in research that links culture to organisational performance, and is focused on those cultural traits that emerged from the research as having a key impact on business performance. The model is based on four cultural traits of effective organisations (Denison & Adkins, 2005).

- *Involvement*. In effective organisations, people are empowered, organised around teams and develop human capability. The executives, managers and employees are committed to the organisation and feel a strong sense of ownership. People at all levels feel they have input into decisions that will affect their work and see a direct connection to the goals of the organisation.
- *Consistency*. The effective organisation tends to have strong cultures that are highly consistent and well coordinated and integrated. Behavioural norms are rooted in core values, and leaders and followers are able to reach agreement

even with diverse points of view. Consistency is a source of stability and internal integration, resulting in a common mind-set.

- *Adaptability*. Internal integration and external adaptation can often be at odds as organisations that are well integrated are often the least responsive. Adaptable organisations are driven by their customers, take risks and learn from their mistakes, and have the capability and experience to foster change.
- *Mission*. Effective organisations have a clear sense of purpose and direction in defining goals and strategic objectives and expressing their vision of the future. When an organisation's underlying mission changes, changes also occur in the different aspects of the organisation.

2.5.5 Martins' model

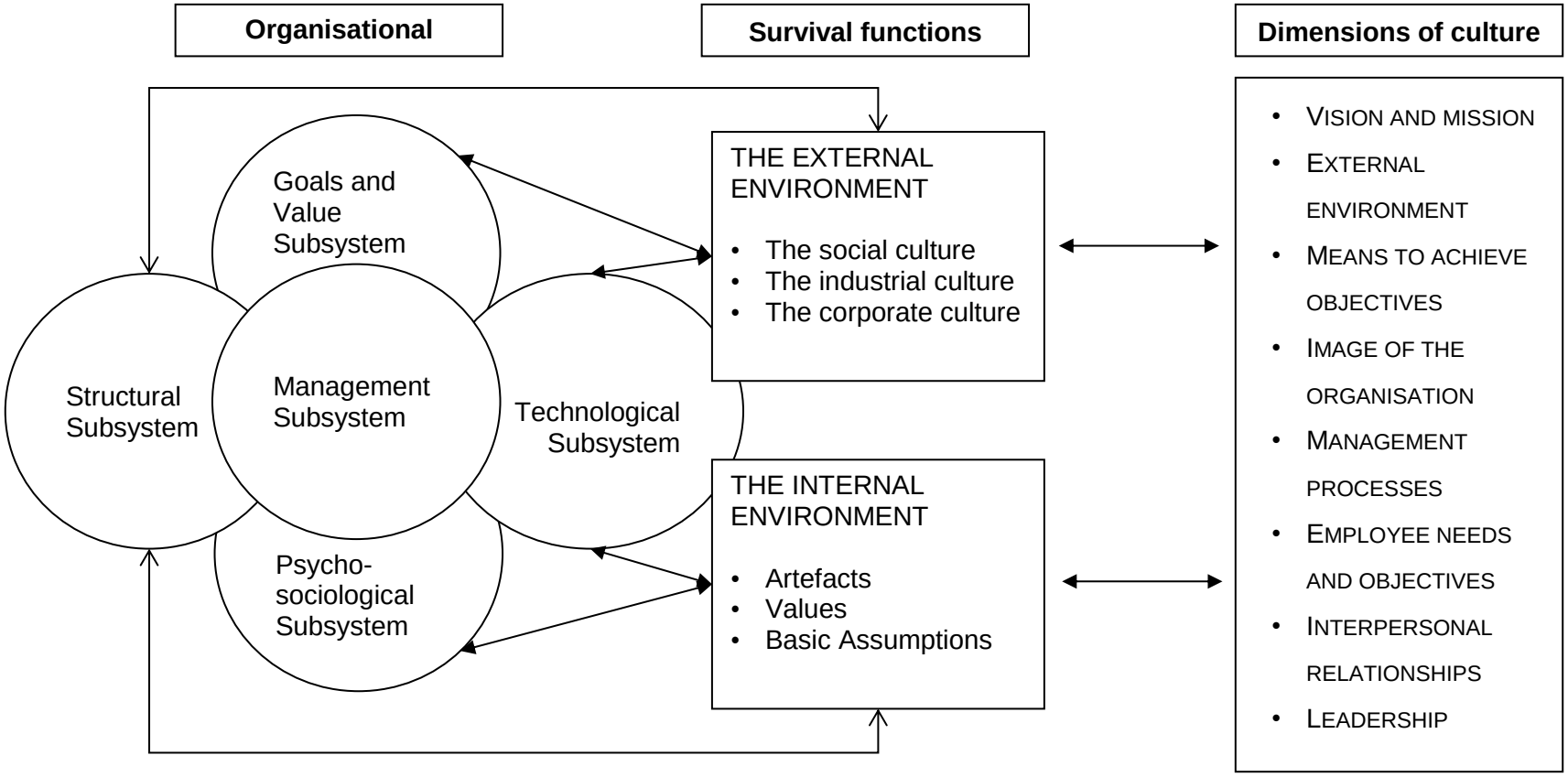
Martins' model, as per figure 2.3, was developed in the South African context and can be used in any organisation (Martins & Von der Ohe, 2003). The model developed by Martins in 1989 to describe organisational culture was based on the work of Edgar Schein and draws on open systems theory. The model is based on the interaction between the organisational subsystems (goals and values, and structural managerial, technological and psychological subsystems), the two survival functions, namely the external environment (social, industrial and corporate culture) and the internal systems (artefacts, values and basic assumptions) as well as the following dimensions of culture (Martins & Martins, 2002):

- strategic vision
- customer focus (external environment)
- the means to achieve objectives
- management processes
- employee needs and objectives
- interpersonal relationships
- leadership.

Martins' model endeavours to explain complex interaction, which occurs at different levels between individuals and groups, and also with other organisations and the external environment, which can be seen as the primary determinants of behaviour in the workplace (Martins & Martins, 2002).

FIGURE 2.3

MARTINS' ORGANISATIONAL CULTURE MODEL



Source: Martins & Von der Ohe (2003, p. 134).

2.6 ROLE OR FUNCTIONS OF ORGANISATIONAL CULTURE

Schein (2004) developed a life-cycle model of organisational change, according which organisations go through different stages of development. Each of these phases can be associated with a different kind of culture, with different sorts of functions and which are susceptible to change in different ways.

2.6.1 Birth and early growth phase

The birth and early growth phase may last from a few years to even a few decades. During this phase, organisational culture fosters consistency while the organisation develops. Culture change during the birth and early growth phase may occur by means of four mechanisms, namely natural evolution, self-guided evolution through organisational therapy, managed evolution through hybrids, and lastly, managed revolution through outsides. The functions of organisational culture during this phase are as follows (Schein, 2004):

- Culture is a distinctive competence and source of identity.
- Culture is the “glue” that holds the organisation together.
- Organisations strive towards more integration and clarity.
- A great deal of emphasis is placed on socialisation as evidence of commitment.
- Culture becomes the battleground between conservatives and liberals.
- Potential successors are judged on whether they will preserve or change cultural elements.

2.6.2 Organisational mid-life

This phase refers to the time when the organisation is well established and faced by strategic choices such as growth, diversification and acquisitions. At this stage, the culture (if the organisation has been formed) and subcultures may also have been formed. Culture change during this phase may occur by means of four mechanisms, namely planned change and organisational development, technological seduction, change through scandal, explosion of myths and incrementalism.

The functions of culture in this phase are as follows (Schein, 2004):

- Cultural integration declines as new subcultures are spawned.
- There are crises of identity and loss of key goals, values and assumptions.
- There are opportunities to manage the direction of cultural change.

2.6.3 Organisational maturity

The organisational maturity phase refers to the period when an organisation is highly stable, exploits mature markets and usually lacks the motivation to change. The culture of the organisation may become dysfunctional during this phase owing to the demands of the environment to be flexible and adaptable on the one hand, but having employees that may be unwilling to change, on the other.

The organisation has two options to stay competitive, namely turnaround (large-scale change) and total reorganisation (such as merging with another organisation or destruction of the group). The change mechanisms applicable to this phase are coercive persuasion, turnaround and reorganisation, destruction and rebirth. The functions of organisational culture in this phase are as follows (Schein, 2004):

- Culture becomes a constraint in innovation.
- Culture preserves the glories of the past and is therefore valued as a source of self-esteem or defence.
- Culture change is necessary and inevitable, but not all elements of culture can or must change.
- Essential elements of culture must be identified and preserved.
- Culture change can be managed or simply be allowed to evolve.
- Culture changes at basic levels.
- Culture changes through massive replacements of key people.

2.7 STRONG AND WEAK CULTURES

Many early followers of organisational culture tended to assume that a strong, universal, culture was beneficial to all organisations, because it fosters motivation, commitment, identity, harmony and sameness, which in turn facilitates internal integration and coordination. Some, however, noted that a strong culture may only be required in some types of environments (www.au.af.mil.com, 2002).

According to Schein (1992), today's organisations need a strong organisational culture, but one that is less pervasive in terms of prescribed norms and behavioural patterns that have existed in the past. A weak organisational culture can be described as more “loosely fit”. A weaker culture may encourage individual thought and contribution. In an environment in which the organisation needs to grow through innovation, this may be a valuable asset. The individual must have the same goals as the organisation and must be a vibrant forward thinker. It should be noted that if the group are too individual, it may lead to conflict in the team. A strong culture, however, can be one in which the majority of the staff members have the same basic beliefs and values as applied by the organisation.

The individuals in the group may follow the rules and the ethical procedures that are basic to the organisation, even if those values are not publicly stated by the organisation (www.cultureorganisation.com, 2007). The greater the number of members who accept the core values and the greater their commitment, the stronger the culture will be and the greater its influence on member behaviour because the high degree of sharedness and intensity creates an internal climate of high behavioural control (Robbins & Judge, 2012, p. 244).

Organisations with “strong cultures” possess a broad and deeply shared value system. A strong culture can help to

- provide a strong corporate identity
- enhance collective commitment
- provide a stable social system

- reduce the need for formal bureaucratic controls (Wood, Zeffane, Fromholtz, Wiesner, & Creed, 2010).

According to Keyton (2011), organisational culture can consist of various elements as per table 2.1, and each element, as described below, may have a positive impact on the organisational culture.

TABLE 2.1

ORGANISATIONAL ELEMENTS

Element/lens	Characterised by	Strength
Symbolic performance	Symbols (objects, words or actions) – including the everyday and unique – that are used in the organisation and stand for something else	Reveals how meaning is created from cultural symbols and the way in which these meanings are integrated into a performance
Narrative reproduction	Stories told by organisational members	Describes first-hand organisational practices and values; reveals the underlying logic or rationale for organisational actions
Textual reproduction	Formal organisational documents; informal employee electronic documents	Reveals discrepancy between espoused and enacted values
Management	Treating organisational culture as a managerial resource or tool; an internal process that influences organisational outcomes	Describes the role of culture in employee selection, organisational success and competitive advantage
Power and politics	Revelation of organisational ideology, especially organisational values about employees	Uncovers discriminatory and harassing practices linked to organisational values; reveals how employees resist control
Technology	Organisational use of technology requires accomplishment of its mission; use of technology to control employees	Reveals how technology is implicitly or explicitly valued in organisational life
Globalisation	Intersection of organisational culture and national culture	Reveals interdependencies and at the same time which cultural elements are primary

Source: Adapted from Keyton (2011, p. 82)

Ybema, Yanow and Sabelis (2011) explain further that a strong culture is a system of informal rules that spells out how staff are to behave, most of the time. By knowing exactly what to do, employees waste little time deciding how to act in a given situation. A strong culture also enables staff to feel better about what they do and will therefore be more likely to work harder. Hence, by understanding how people react, management will be able to influence the organisational culture to ensure that the culture

- is strong and inclusive, not weak and divided
- is positive and productive; not negative and unproductive
- is capable of acceptance by all the staff in the organisation
- serves the interests of everyone in the organisation and not only specific groups
- is created to embrace change, instead of being rigid and defensive (Pettinger, 2010).

2.8 CHANGING ORGANISATIONAL CULTURE

According to Kreitner and Kinicki (2004, p. 682), organisational development takes place when “managers plan change in organising and managing people that will develop requisite commitment, coordination, and competence. Its purpose is to enhance both the effectiveness of the organisation as well as the well-being of their members through planned intervention in the organisation’s human processes, structures, and systems, using knowledge of behavioural science and its intervention methods. In order to remain competitive, organisations should be able to adapt to the rapidly changing environment. Hence the understanding of organisational culture, as well as the interaction with national culture (i.e. dominant values in the society) on organisational processes, is considered to be crucial for success or failure (Van Muijen, 1998).

Internal or external influences may force organisations to adapt or change current status. Kinnear and Roodt (in Louw & Martins, 2004) contend that external forces will be the motivation for change whereas internal forces will be resistant to change.

Organisational development focuses on building the organisation's current functioning to be able to achieve its goals. Hence organisational development is oriented to improve the total system, that is, the organisation and its parts in the context of the larger environment that affects those (Cummings & Worley, 2005).

Martins and Martins (2002), suggest that an in-depth analysis of an organisation should be conducted to obtain valuable information on the values, beliefs and behaviour patterns that drive organisational performance. Values such as conservatism or work locus of control may be expected to relate to attitudes, which will also influence the way change occurs (Furnham, 1997).

Organisational culture issues should be identified to promote competitiveness. However, change such as technology, strategy, working systems and even management styles can impact organisational culture. Beer in Cummings and Worley (2005, p. 2) defines organisational development as "a systematic process of data collection, diagnosing, action planning, intervention, and evaluation aimed at enhancing congruence among organisational structure, process, strategy, people, and culture; developing new and creative organisational solutions, and lastly developing the organisation's self-renewing capacity." This occurs through the collaboration of organisational members, working with a change agent using behavioural science theory, research and methodology. Cummings and Worley (2005) also explain that the elements of culture that are usually assessed include artefacts, norms, values and basic assumptions that are more or less shaped by organisation members.

The following practical advice can serve as a guideline for cultural change (Cummings & Worley, 2005; Schein, 1983).

- *Formulate a clear strategic vision*. Cultural change should start from a clear vision of the organisation's new strategy and of the shared values and behaviours needed for successful change. The vision provides direction for change and should be aligned with the organisation's core values.
- *Display top management commitment.* Change should be managed from the top to show commitment to the new values. Constant pressure from management will ensure change. Deliberate role modelling, teaching and coaching by leaders will contribute to the embedding of a culture.
- *Model culture change at the highest levels*. The new culture should be communicated through the action of senior management. Their behaviours should reflect the values and behaviours sought. Stories, legends and myths and parables about key people and events can be communicated. Management provide the structure and the process for people to accomplish the desired change goals (Conceição & Altman, 2011).
- *Modify the organisation to support the organisational change.* Cultural change requires modifications in organisational structures, human resources systems, information and control systems as well as management styles.
- *Select and socialise newcomers and terminate deviants*. One of the most effective ways of changing organisational culture is to change the membership of the organisation because staff can be selected and terminated in terms of their fit with the new culture. This is especially critical in key leadership positions since actions can significantly promote or hinder new values and behaviours.
- *Develop ethical and legal sensitivity*. Culture change can raise significant tensions between organisations and individual interests, resulting in ethical and legal problems for practitioners. Recommendations for reducing the chances of ethical and legal problems include setting realistic values for culture change and not promising what the organisation cannot deliver; encouraging input throughout the organisation in setting the cultural values; providing mechanisms for member dissent and diversity such as internal

review procedures; and educating managers about the legal and ethical pitfalls inherent in cultural change and helping them develop guidelines for resolving such issues.

According to Martins and Martins (2009), the following three forces specifically play a key part in sustaining culture: selection practices, the actions of top management and socialisation methods. The first force, namely selection, does not only focus on knowledge, skill and abilities, but also on how a candidate will fit into the organisation's culture. Top management as the second force have an impact on the organisational culture through what they say or how they behave. The third force or concept of socialisation refers to the process "by which a new member learns the value system, the norms and the required behaviour pattern of the society, organisation, or group that he is entering in order for the employee to adapt to the new culture. It does not include all learning. It only includes the learning of those values, norms and behaviour patterns that, from the organisation's point of view or group's point of view, it is necessary for any new member to learn" (Schein, 1978, p. 84).

Formal and informal methods can be used to accomplish socialisation. An example of the informal method is storytelling or a discussion of the same topics. New employees who hear these stories will be able to gain an understanding of the organisational culture. Ritual and symbols form part of the formal methods of socialisation. Activities such as award ceremonies and staff socials give the impression of a "caring organisation". Another well-known ritual, the probationary period, can also be seen as a ritual. Symbols, however, are communication tools that convey messages to employees. Mission and value statements can assist a staff member to adapt to the new environment (Aamodt, 2007).

According to Coghlan and Rashford (2006), an organisation responds to change in the following four phases:

- *Denial ("This does not affect us")*. The denial stage usually begins after information has been gathered that suggests change because of external or

internal influences such as personnel. This phase centres around the processing of information, analysing and disputing of information, relevance and timeliness. It is vital that the key change agent or demonstrator receive the necessary support from the "patrons" or defenders to enable movement to occur.

- *Dodging ("Ignore this. Don't get involved")*. This stage is characterised by questioning whether or not change is needed, and it is expressed in passive-aggressive nonparticipation, failure and blame. Movement can only occur when teams take ownership and accept the need for change.
- *Doing ("This is very important, we have to do it")*. When opposition has been voiced, frustration released and there is an agreement (not always vocal) that this change needs to be tried, the doing phase begins. As the specific changes are worked on, more changes are realised. The focus also shifts from the change agent to the change implementers.
- *Sustaining ("We have a new way of proceeding")*. This stage is characterised by following through the project and programmes. The completion of this stage is the interaction, if the change involves habitual patterns of behaviour and structure.

According to Kotter and Heskett (1992), the single most visible factor that distinguishes major cultural change that succeeds from those that fails is competent leadership at the top. Leaders are responsible for the strategic direction and operations of the organisation and need to actively lead the transformation (Cummings & Worley, 2005).

Kotter (1996) suggests the following eight steps to transform an organisation:

- Establish a sense of urgency, which involves
  - examining market and competitive realities
  - identifying and discussing crises, potential crises or major opportunities.
- Form a powerful guiding coalition, which entails
  - assembling a group with enough power to lead the change effort

- encouraging the group to work together as a team

- Create a vision, which refers to

- creating a vision to help direct the change effort
- developing strategies for achieving that strategy.

- Communicate the vision, which means

- using everyday vehicles that make it possible to communicate the new vision and strategy
- teaching new behaviours by the example of the coalition.

- Empower others to act on the vision, which relates to

- getting rid of obstacles to change
- changing systems or structures that seriously undermine the vision
- encouraging risk taking and nontraditional ideas, activities and actions.

- Plan and create short-term wins, which involves

- planning for visible performance improvements
- creating those improvements
- recognising and rewarding employees involved in the improvements.

- Consolidate improvements and generate still more changes, which means

- using increased credibility to change systems; structures and policies that do not fit the vision
- hiring, promoting and developing employees who can implement the vision
- reinvigorating the process with new projects, themes and change agents.

- Institutionalise new approaches, which involves

- articulating the connections between the new behaviours and corporate success
- developing the means to ensure leadership development and succession.

It should be recognised that individuals affected by change in organisations can have an impact on the change process itself. This is because of the work stress associated with the change process. Poor mental health can act as a barrier to change (Loretto, Platt, & Popham, 2010).

2.9 CHAPTER SUMMARY

This chapter introduced the concept of organisational culture. It provided the background to organisational culture and defined the concept. The concept and importance of organisational culture were explained. Different culture models and dimensions were highlighted in order to provide further clarity. The role and function of cultures and strong versus weak cultures were elucidated. The chapter concluded with a discussion of the ways in which organisational culture can be changed.

CHAPTER 3

OCCUPATIONAL HEALTH

3.1 INTRODUCTION

The concept of organisational health will be explored in more detail in this chapter, by focusing on defining the concept, discussing the theoretical relationship between organisational culture and organisational health and explaining the effect of general health factors in the work environment.

3.2 BACKGROUND TO OCCUPATIONAL HEALTH

Work and health psychology can be described as a subdiscipline of psychology, concerned with the "promotion of health and the ability of people to function effectively in working organisations (Winnubst & Diekstra, 1998). Mathis and Jackson (1982, p.385) define health as "a general state of physical, mental and emotional well-being". According to Barling and Griffiths (2003), occupational psychology is not a recent phenomenon relating to how workplace practices and policies, supervision and leadership affect employees' physical and psychological well-being. This phenomenon attracted a considerable amount of interest for much of the 20th century. Recognition of the importance of the more intangible aspects of work and their effects on individual health, both psychological and physical, began to emerge in the 19th century, particularly after the Industrial Revolution. The changing nature of work because of a factor such as globalisation increases international competition which leads to increased levels of stress, for companies and individuals alike. The factor mentioned above highlight the importance of safe and healthy environments to ensure optimal functioning. The purpose of occupational health psychology is to develop, maintain and promote the health of employees directly and the health of their families (Quick & Tetrick, 2003). Ill health occurs when environmental demands or constraints are perceived by a person to exceed his or her capabilities or resources (Jackson, Rothman, & Van de Vijver, 2006).

3.3 DEFINING OCCUPATIONAL HEALTH

Research focusing on stress in the workplace has been well defined and there is evidence that the physical and mental health of individual workers can be affected by increased stress. However, organisational health still needs to be clearly defined (MacIntosh, MacLean, & Burns, 2007). Bergh and Theron (2001, p. 470) define work adjustment as “occupational well-being, including physical health, but especially the psychological or emotional adjustment of employees facilitating or impairing work performance”. Since 1950, the International Labour Organization (ILO) and the World Health Organization (WHO) have shared a common definition of occupational health. It was adopted by the Joint ILO/WHO Committee on Occupational Health at its first session in 1950 and revised at its twelfth session in 1995. The definition reads as follows: “Occupational health should aim at: the promotion and maintenance of the highest degree of physical, mental and social well-being of workers in all occupations; the prevention amongst workers of departures from health caused by their working conditions; the protection of workers in their employment from risks resulting from factors adverse to health; the placing and maintenance of the worker in an occupational environment adapted to his physiological and psychological capabilities; and, to summarize, the adaptation of work to man and of each man to his job” (Stellman in Sieberhagen, Rothman, & Pienaar, 2009, p.29).

The South African Department of Labour summarises the aim of the Occupational Health and Safety Act 85 of 1993 (p.1) as follows: “to provide for the health and safety of persons at work and for the health and safety of persons in connection with the use of plant and machinery; the protection of persons other than persons at work against hazards to health and safety arising out of or in connection with the activities of persons at work; to establish an advisory council for occupational health and safety; and to provide for matters connected therewith”.

3.4 IMPORTANCE OF OCCUPATIONAL HEALTH

Money-Kyrle (1961) explains that an “emotionally sick” person can be regarded as relatively inefficient because he or she is unable to perceive the real world accurately or as efficiently as an “emotionally healthy” person. A study by Heth, Schapira, and Nahir (2007), indicated that patients who were lower in controllability awareness, experienced more stress and suffered more from their physical symptoms, irrespective of age, type of illness or level of disease activity. Controllability awareness, “which is assessed by determining the extent to which individuals respond to life situational outcomes, has previously been shown to be a significant predictor of stress tolerance in various populations of healthy adults” (Heth et al., 2007, p. 183).

3.4.1 Work-related anxiety, fears and depression

Anxiety, fears and depression may be interrelated factors in many work-related problems or even specific aspects of jobs. The feelings and emotions involved in these conditions may relate to general feelings of anxiety and depression, such as feelings of not being able to do things or performance anxiety. Anxieties and depression, whether viewed as personality traits or a state of mind, may impair work performance, at different times and to varying degrees, from only slightly to incapacitating. The fact that anxiety is characterised by physiological symptoms, worry and strong emotions influences the physical, cognitive and interpersonal performance areas at work (Bergh & Theron, 2001).

Smedley, Dick, and Sadhra (2007, p. 168) define a psychosocial hazard as “any factor that may cause distress or psychological harm”.

TABLE 3.1

PSYCHOSOCIAL HAZARDS

Psychosocial hazards	
Content of job Work overload, deadlines, difficulty of work, time pressures, under loading (work too easy).	Organisation of work Shift work, long working hours, unsociable working hours, unpredictable working hours, organisational restructuring, non-consulted changes.
Workplace culture Communication, involvement in decision making, feedback, resources provided, support.	Work role Clarity of job, conflict of interest, conflict of beliefs, lack of control over work.
Structure Over-promotion (self/others), under-promotion (self/others), redundancy threats, pay structure or inequalities.	Relationships Poor communication, harassment, bullying, verbal abuse, physical abuse/intimidation.
Environment Noise, temperature, lighting, space, ergonomics, (perceived hazard exposure).	Home-work interference Childcare issues, transport problems, commuting, relocation, housing issues.

Source: Smedley et al. (2007, p.168)

The psychosocial hazards described in table 3.1 may lead to the following:

- stress
- physical changes, directly or indirectly, including the following:
- cardiovascular problems
- infections
- immune suppression
- mental health problems such as anxiety and depression
- cancers associated with increased use of alcohol, tobacco and drugs
- musculoskeletal problems.

Other adverse effects include

- low morale and job satisfaction
- low productivity
- an increase in industrial disputes
- increased accidents and injuries (Smedley et al., 2007).

Puplampu (2005) conducted research in the Africa context in order to formulate a framework for understanding distressed organisations. The outcome of the research was that the following factors can contribute to the causes of organisational ill health:

- Leadership and governance problems. A lack of leadership, characterised by work-life problems, the inability to separate strategic goals and the drive of such goals, as well as the inability to stimulate the managerial function, might contribute to the cause of ill health. Poor governance compounds this leadership weakness.
- Performance management system. Lapses in a performance management system will also contribute to the organisational ill health owing to the link between productivity, organisational growth and individual compensation. The result is that individuals, irrespective of their level in the organisation, tend to expect rewards.
- Human systems. Here, human systems (which are supposed to ensure that employees are properly recruited, committed and looked after) and procedural mechanisms (which are supposed to help control behaviour and task executions across functions) are not developed properly or maintained effectively.
- Culture clashes. In some instances, because of the demands of national cultural practices, progressive organisational governance and development may be impacted. In instances where negative cultural norms are allowed to supersede organisational systems, the demise of the organisation may be inevitable. Martins and Martins (2009) explain that national culture is more influential than organisational culture in shaping employee behaviour.

3.5 ILL HEALTH SYMPTOMS

Around the world, injury and illness rates associated with psychological and psychosocial hazards and risks in the workplace are a growing concern (Sauter, Murphy, & Hurrell, in Adkins 1999). Research conducted by Ashkanasy and Ashton-James (2005) demonstrated that organisational change causes chronic occupational stress that has carry-over effects on family functioning psychological health, physical health job satisfaction, organisational commitment and loyalty. Ill health symptoms relating to the study include anxiety and insomnia, social dysfunction and somatic symptoms, and will be briefly explained.

3.5.1 Anxiety and insomnia

According to Shirom, Armon, Berlinger, Shapira, and Melamed (2009), sleep research began in the 1950s with the discovery that sleep is a highly active state, as opposed to a passive condition of nonresponse. The most prevalent type of sleep disturbance, insomnia, may occur in a transient, short-term or chronic form. According to Colman (2006, p. 379), insomnia can be defined as follows: the "[i]nability to fall asleep or to maintain restful sleep, the condition being chronic".

Increasing evidence indicates that insomnia leads to fundamental impairments in quality of life and functional capacity and represents a substantial economic burden. Insomnia has been linked to the following: daytime fatigue; greater use of medical services; self-medication with alcohol or over-the-counter medication; greater functional impairment; greater work absenteeism; impaired concentration and memory; decreased enjoyment of interpersonal relationships; and increased risk of serious medical illness and traffic and work accidents. Insomnia can be viewed as the inability to recover and replenish depleted resources after exposure to stress.

This is a vicious circle in which stress at work evokes physical and cognitive hyperarousal. This disturbs sleep, which in turn reduces the ability to renew coping resources (represented by perceived control and social support) and in turn increases the feeling of stress. In addition, high levels of physiological tension, such

as heart rate and muscle activity, may make it more difficult to relax. Psychosocial factors at work may also be a fundamental source of cognitive arousal, manifested by disturbing thoughts that become intrusive when a person attempts to sleep. Thus, while attempting to relax and fall asleep, thoughts about stressful situations at work may be a source of rumination, disrupt relaxation and create arousal which induces difficulties in falling asleep (Shirom et al., 2009).

Anxiety is the tense, unsettling anticipation of a threatening, but vague event. It is a negative affect closely related to fear. In its purest form, anxiety is persistent, objectless and unpleasant. Anxiety can be caused by external cues of danger or internal threats (Rachman, 2004).

Lowman (Quick, 1999) illustrated the importance of goodness of fit in order to avoid work dysfunction. Lowman suggested that the characteristics of the task in the work environment, such as the degree of uncertainty in work outcomes and the presence of external others, and characteristics of the person, such as level of trait anxiety and degree of helplessness, need to be considered simultaneously. Thus, the distress may not have its origin primarily in the work task or in the individual. Instead, the distress may result from a misfit in the characteristics of the work task and the person.

3.5.2 Somatic symptoms

According to Barlow and Durand (2002), the word “soma” means body, and the problem preoccupying people seems, initially, to be a physical disorder. What somatic disorders have in common, however, is that there is usually no identifiable medical condition causing the physical complaints. Persons with somatic symptoms are also overly concerned with their physical health and may falsely complain about illnesses. These disorders may be a result of efforts to cope with anxiety (Bergh & Theron, 2001). Complex somatic symptom disorders can be defined as a group of disorders involving physical symptoms or complaints that have no physiological basis.

These disorders are believed to be the result of an underlying psychological conflict or need. These symptoms include gastrointestinal, pseudo-neurological, pain, reproductive organ, cardiopulmonary and other symptoms such as vague food allergies, hypoglycaemia, chronic fatigue symptoms, fibromyalgia and chemical sensitivity (Sue, Sue, Sue, & Sue, 2013).

3.5.3 Social dysfunction

Effective social functioning suggests equilibrium with the person and his or her interaction with the environment. Dysfunction, however, implies discontent and unhappiness, together with negative self-regarding attitudes. The definition further suggests handicapping anxiety and other pathological interpersonal functions that reduce flexibility in coping with stressful situations or achieving self-actualisation in what is to the person a significant role (Linn in McDowell, 2006).

Communication and interpersonal skills are becoming increasingly important in the workplace environment as the team approach becomes more prevalent. Social dysfunction does not only refer to social skill deficits, but also performance deficits. Both of these deficits can result in impaired interpersonal performance, although the treatment for each would be different. According to Thomas and Hersen (2002), social dysfunction is a recognised characteristic of numerous psychological disorders, which may include schizophrenia, substance abuse, major depressive disorders and personality disorders.

3.6 OCCUPATIONAL HEALTH MODELS

Barling and Griffiths (2003) maintain that occupational health psychology is not a recent phenomenon because the way in which workplace practices and policies, supervision and leadership affect employees' physical and psychological well-being attracted a considerable amount of attention for much of the 20th century. Recognition of the importance of the more intangible aspects of work and their effects on individual health, both psychological and physical, began to emerge in the 19th century, particularly after the Industrial Revolution.

The changing nature of work owing to factors such as globalisation increases international competition, which leads to increased levels of stress for companies and individuals alike. Factors such as those mentioned above highlight the importance of safe and healthy environments to ensure optimal functioning. The purpose of occupational health psychology is to develop, maintain and promote the health of employees directly and the health of their families (Quick & Tetrick, 2003). Ill health occurs when environmental demands or constraints are perceived by a person to exceed his or her capabilities or resources (Jackson et al., 2006).

3.6.1 Berg and Theron's model

Bergh and Theron (2001) explain in figure 3.1 that an organisation can be viewed from a systems perspective, which means taking cognisance of the possible interactions between persons and groups, their relationships and relatedness to other contexts both inside and outside the organisation. The premise is that an organisation functions as a whole or as a unit. This is necessary to achieve objectives that cannot be achieved by individuals on their own. The type of interaction between the individual and the organisation contributes to the objectives of the organisation and individual success, namely efficiency, effectiveness and good health, which includes psychological, physical and organisational health.

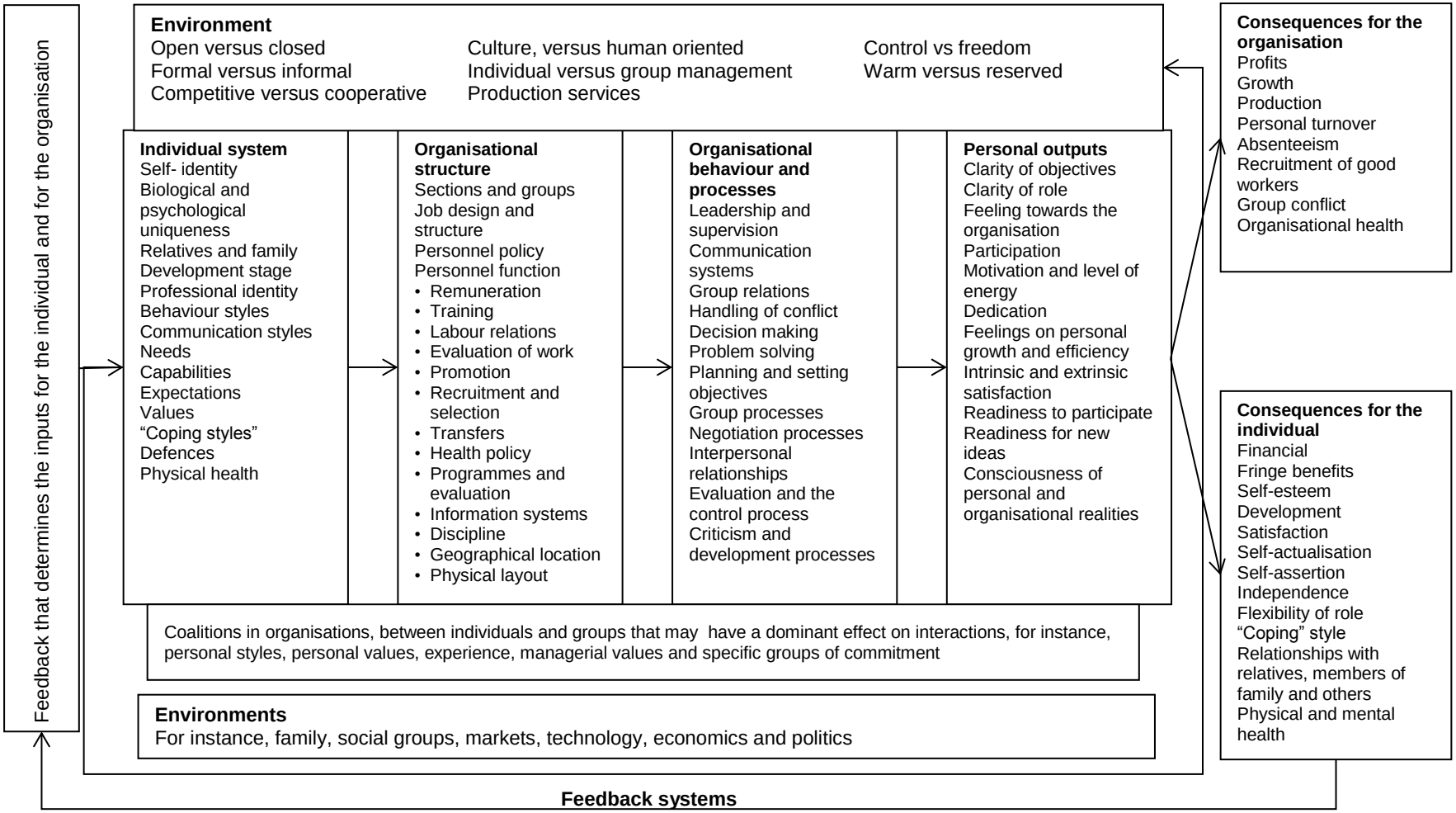
The premise of Berg and Theron's (2001) model is that individuals, as self-systems in all the domains of behaviour (biological, cognitive, social and psychological), can be understood by examining the context of the wider and hierarchical systems that surround them. Individuals bring their own self-system to the workplace because of their individual experiences and characteristics. Staff members' personalities furthermore consist out of behaviour patterns and relationship styles that are formed by learning, experiential processes and hierarchical systems, which in turn determine their behaviour and relationships with the organisation and fellow employees.

The organisation, however, also has specific and characteristic inputs, influences by the culture of the organisation and influential hierarchical systems. Culture and organisational culture in particular influence people's health. All these inputs from the organisation, such as attitudes, behaviour and feelings, have consequences that

impact on the individual and group. These consequences also include health factors. The interaction between individuals and between individuals and organisations is constantly monitored by means of feedback or control systems, which also determine the extent to which the individual accepts or rejects the output and consequences (Bergh & Theron, 2001).

FIGURE 3.1

A SYSTEM-INTERACTIONAL MODLE OF OCCUPATIONAL MENTAL HEALTH

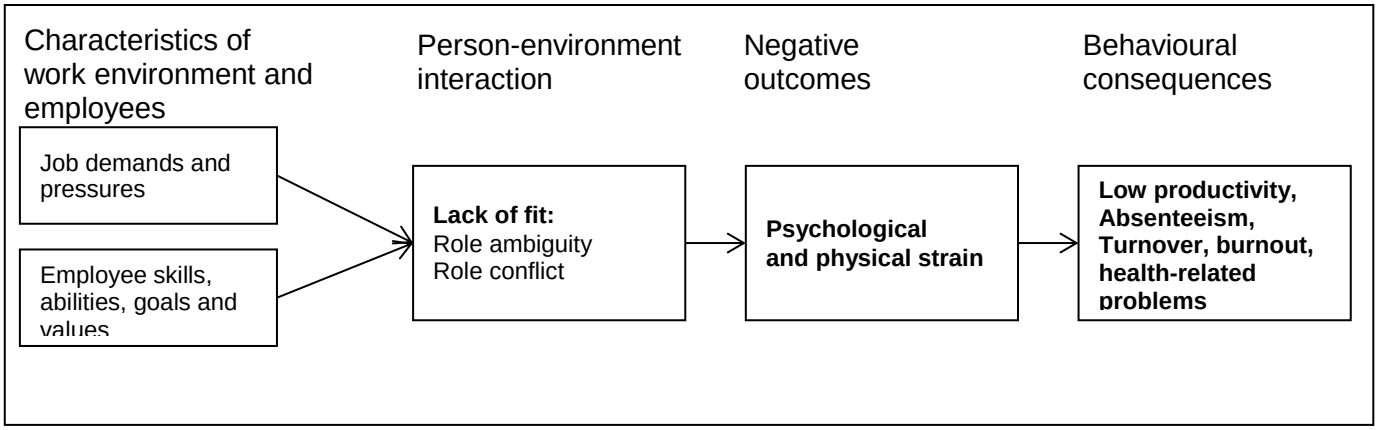


Source: Adapted from Beer in Bergh and Theron (2001).

3.6.2 Person-environment fit models

Kurt Lewin (1952) observed the characteristics of a person interacting with environmental stressors to determine how much strain is experienced by an individual as well as the effect of the strain on behaviour and health. Robert Kahn incorporated Lewin's concepts of stress and strain in the person-environment fit (PE-Fit) theory (figure 3.2), which is the major conceptual framework for research and occupational stress. In the context of the PE-Fit theory, job stress results from an incompatible person-environment fit that produces psychological strain and stress-related medical and health problems (Spielberger, Vagg, & Wasala, 2003).

FIGURE 3.2
PERSON-ENVIRONMENT FIT MODEL FOR THE STUDY OF OCCUPATIONAL STRESS



Source: Quick & Tetrick (2003, p. 186)

The term "person-organisation fit" refers to how well factors of a person, such as skills, knowledge, abilities, expectation, personality, values and attributes match those of the organisation. Workers and organisations have realised that it is critical for an employee to fit into an environment and perform well and not only focus on skills and knowledge to perform a task (Aamodt, 2007).

3.6.3 Effort- recovery (E-R) theory

The E-R theory by Meijman and Mulder (1998) was developed to understand the impact of work characteristics on work behaviour, health and well-being. According to this theory, exposure to workload requires effort, which is associated with psychophysiological reactions such as accelerated heartbeat, increased hormone secretion and mood changes. These reactions are adaptive (e.g. providing information on the effort needed to perform the task) and reversible (i.e. when the exposure to workload ceases, the functional systems that were activated will recover again within a certain period of time). A central assumption of the theory is that the originally adaptive responses develop into negative reactions to workload (i.e. negative load reactions, such as sustained activation, strain and/or short-term psychosomatic health complaints) when recovery opportunities during the exposure period are insufficient (Geurts, Taris, Kompier, Dikkers, Van Hooff, & Kinnunen, 2005. p. 321).

The E-R theory sheds light on the underlying mechanisms in the relationship between workload and well-being by assuming that recovery from workload effects during the nonworking period plays a crucial role. A central idea of this work psychological model is that meeting work demands that require effort produces two kinds of outcomes, the product itself (i.e. the tangible result of work activities) and the short-term physiological and psychological reactions (i.e. the costs and 'benefits' for the individual). Under normal circumstances, these reactions are reversible: after a short respite from work demands, the worker's psychobiological systems will stabilise again at a baseline level and recover from the effects of work demands that have built up during the working period. Hence fatigue and the other effects of the demanding work situation will diminish and finally disappear. But what if opportunities for recovery after being exposed to workload are insufficient? This may happen when demands placed on the individual do not cease after working time but continue to exist during the nonworking period, say, when workers have extensive domestic obligations (Geurts, Kompier, Roxburgh, & Houtman, 2003).

Recovery may also be hampered when workers are slowly unwinding, because the load effects of a stressful working day do not unfold immediately, but last during the evening hours at home, for instance, when workers have difficulty relaxing after a demanding working period (Geurts et al., 2003).

3.7 CHANGING OCCUPATIONAL HEALTH IN AN ORGANISATION

As mentioned previously, owing to external and internal forces, the workplace is characterised by extraordinary levels of change. These changes pose new challenges for both the individual and the organisation because they impact on the physical, psychological and behavioural vitality of the workforce (Adkins, 1999).

Grawitch, Ballard, Ledford, and Barber (2009), highlight the fact that it is crucial for employees and employers to team up in order to create a system that is mutually beneficial. According to these authors, organisations should not only focus on the work itself or the benefits as competing issues, but instead optimise the interplay between organisational systems, employee health and well-being needs. Organisations should use the following guidelines:

- Provide opportunities for employees to become involved and create a healthy workforce.
- Tailor new programmes and policies to meet the specific needs of the organisation and its employees.
- Ensure that the purpose of new programmes, policies and benefits is communicated. Management should be informed of what can be expected of such a programme.
- Ensure that the new programme is aligned with the organisational content.
- Collect periodic cost-benefit data as a way to relate back to organisational effectiveness, which will also ensure that the benefits survive over time.

According to Hasle and Jensen (2006), Kotter's model can be used during the change management phase. They also suggest an alternative model, by using a metaphor as a tool for understanding organisations. The metaphor of the amoeba is used due to the following biological characteristics:

- It is a living system.
- It extracts energy and information from the environment.
- It moves slowly towards the best living conditions.
- Its direction is difficult to estimate but can be influenced.
- It contains several organelles, which are crucial for survival and movement.
- The organelles are active all the time but not at the same level.

These characteristics can be compared to a change process that is difficult to control, but contains elements that are crucial for the process to remain alive. The key elements are as follows:

- The opportunity for change. An opportunity will allow for discussion, decisions and changes because of internal or external influences.
- Sustainable formulation of the problem and guidance for the change project in an organisation.
- Social dynamics because some staff might be resistant to change
- Dissemination and anchorage. Although it might be difficult for new opportunities or procedures to be accepted in the organisation, it is essential to involve the staff members in the process.
- Culture and context. Culture determines the interpretation of activities in an organisation. It is thus important to understand the culture of the organisation in order to work with and not against the organisational culture. The context, however, comprises the organisation's present situation, which may include the economic situation, new challenges, political development and present strategies for handling and developing operations (Hasle & Jensen, 2006).

Cooper, Quick, and Schabracq (2009) provide basic practical advice on how to increase psychological well-being, as indicated in table 3.2

TABLE 3.2

PRACTICAL ADVICE TO INCREASE PSYCHOLOGICAL WELL-BEING

Well-being influence	Layered intervention options		
	Composition	**Development**	**Structural engineering**
Balanced workload	Recruit staff with skills and work styles better suited to the required work	Develop managers to balance staff challenge and support more effectively	Review and improve work planning and distribution mechanisms
	Increase staff numbers	Train staff in work smarter/time management techniques	Reduce workload
Collaborative relationships	Construct work teams with a better balance of team role preferences	Train managers and customer-facing staff in conflict management techniques	Redesign office layout to increase space for informal collaboration
	Change promotion criteria to increase emphasis on team-working skills	Coach managers who overuse a command and control leadership approach	Redesign jobs to maximise perceptions of control
Enhanced control	Select staff with high internal locus of control	Train staff using cognitive behavioural approaches to learn to control their thinking and reactions to positive outcomes	
	Redeploy people who feel that they cannot exert sufficient control in their current role	Assertiveness training to develop staff to take control	Reduce layers of management
	Select managers who are happy to delegate control		
Sense of purpose	Introduce realistic job preview to improve fit between candidate goals/aspirations and organisational goals	Introduce training in goal-setting techniques for all new managers and supervisors	Design and implement a strong well-being brand

Well-being influence	Layered intervention options		
	Composition	**Development**	**Structural engineering**
	Promote managers based in their track record in inspiring teams to perform well above their previous level	Coach senior manager with the objective of improving their skills in articulating a compelling vision	Reduce bureaucracy
		Board development to create shared vision	Reduce levels of the organisation so mission and vision is more visible

Source: Adapted from Cooper et al. (2009, p. 437)

3.8 ORGANISATIONAL CULTURE, STRESS AND CHANGE

According to Colman (2006, p. 731), stress can be defined as "[p]sychological and physical strain or tension generated by physical, emotional, social, economic, or occupational circumstances, events or experiences that are difficult to endure.

According to Schabrach et al. (2003), failure to address problems in an organisation does not only impact on the organisation as a whole, but also on the individual employee. When problems are not solved, each of them can seriously undermine the effectiveness of the organisation. These may further lead to individual stress complaints. The authors further explain that organisational culture can cause underlying stress owing to inconsistencies in rules or when there is an inconsistency in the "advertised" culture on the "official" organisation culture, which may be less ethically correct. The resultant value conflict is one of the causes of severe stress and burnout problems, especially in organisations that attract highly ethically driven personnel.

3.8.1 Occupational health and organisational culture

A series published by the World Health Organisation (Leka, Griffiths, & Cox, 2003) explains that organisational culture is also concerned with how problems are recognised and solved. The organisational culture can affect what is experienced as

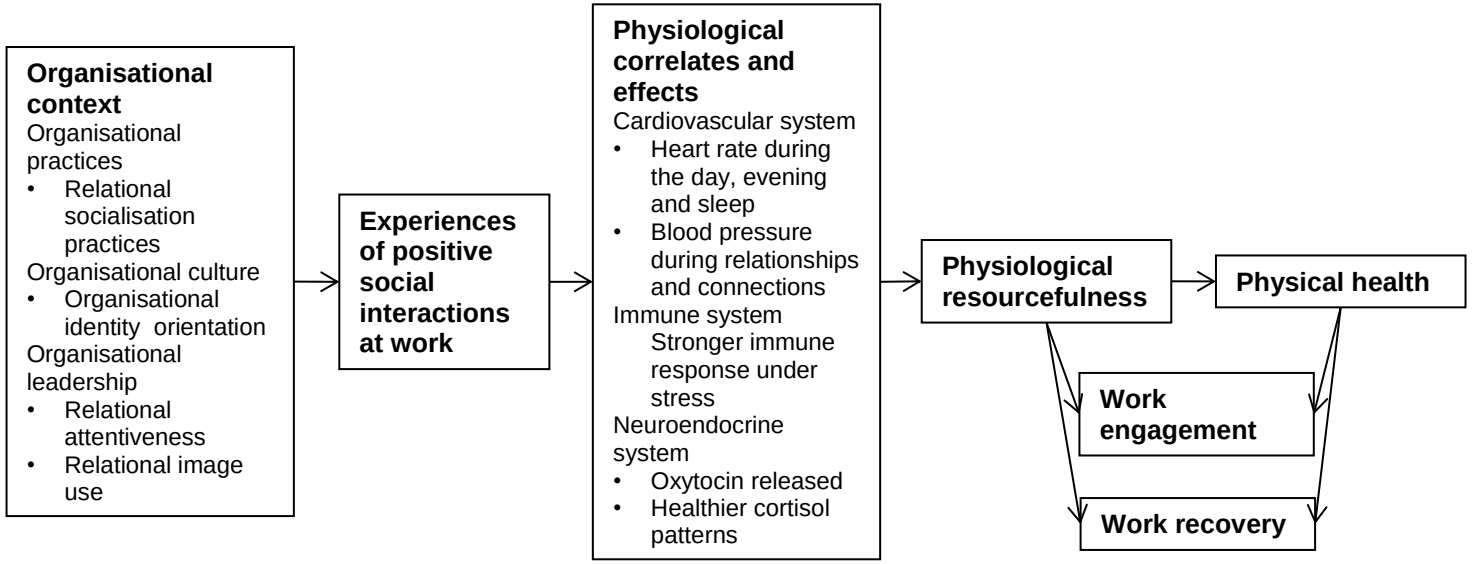
stressful, how the experience translates into health difficulties, how both health and stress are reported and how the organisation responds to these reports. Various organisations recognise the powerful and positive value of psychological insights and knowledge to create healthier work environments. A work-life organisational culture, for example, addresses the managerial dimension of organisational health and is also applicable to a wide range of issues such as work-life balance, burnout, depression and employee assistance programmes (Quick, Macik-Frey, & Cooper, 2007).

According to Keyton (2011), organisational culture can affect both organisational outcome such as absenteeism, safety and quality as well as individual outcomes such as aggression and health. However, factors such as values, interest and power can influence organisational culture positively or negatively and also be a source of occupational health (Prilleltensky & Prilleltensky, 2006).

Research conducted by Heapy and Dutton (2008), as illustrated in figure 3.3, revealed that the experiences of social interaction at work directly affect the physiological processes. The research proposes pathways through which the physiology of positive social interaction builds human capacity and pathways through which organisations shape the physiology of employees by creating, facilitating or minimising opportunities for positive social interaction (Heapy & Dutton, 2008, p. 137). Positive work relationships appear to strengthen the immune system by bolstering components of immune responses. Because the immune system is always alert for challenges, such as viruses, the strength of the immune system can have effects on short- and long-term health. Shared values and beliefs - hence organisational culture - can have an impact on employees' health by shaping patterns and perception through positive social interaction (Heapy & Dutton, 2008). This ties in with the specific aim of this research, namely to determine whether a statistical significant relationship exists between organisational culture and occupational health.

FIGURE 3.3

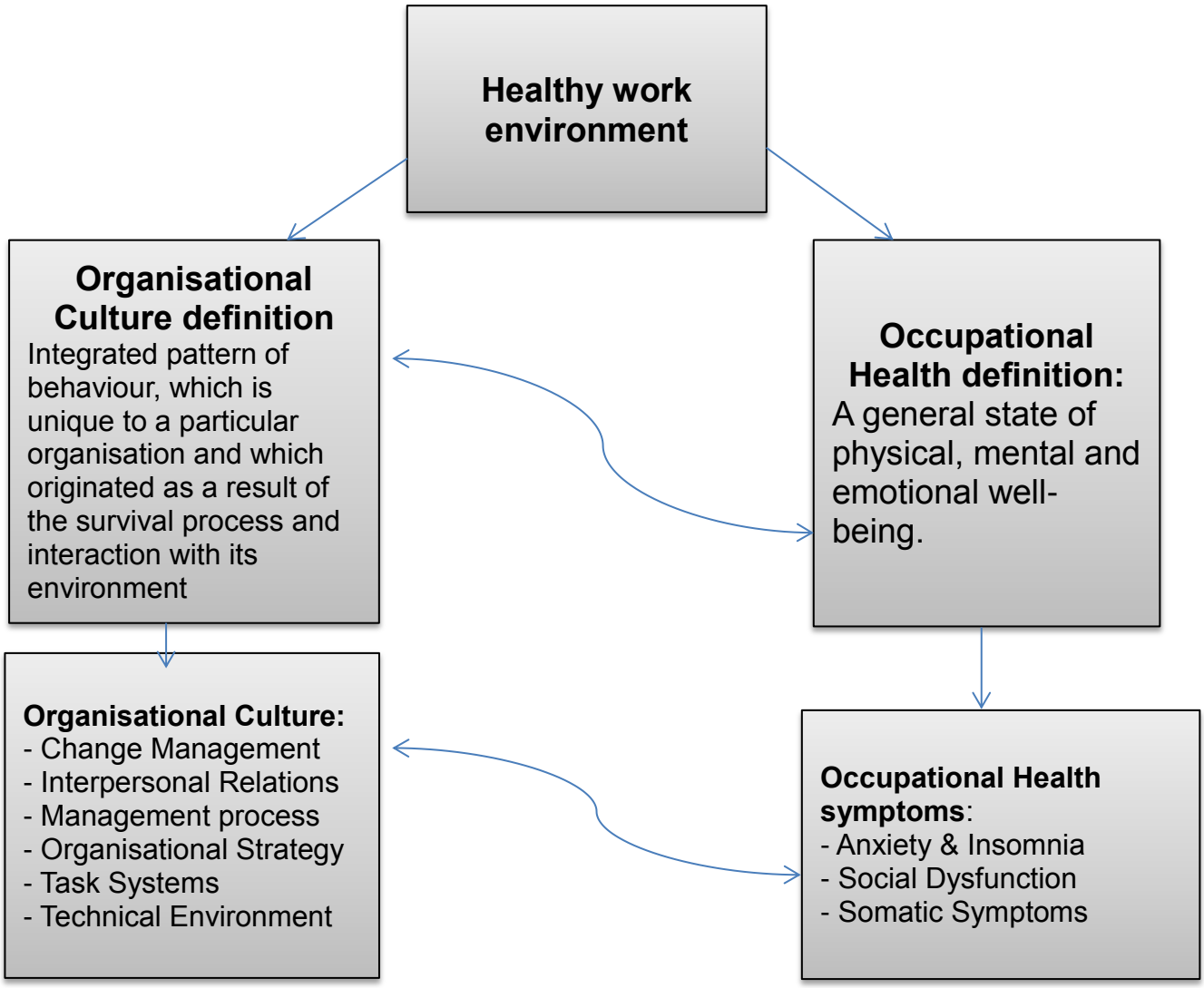
THE PHYSIOLOGY OF POSITIVE SOCIAL INTERACTION AT WORK



Source: Adapted from Heapy & Dutton (2008, p. 139)

FIGURE 3.4:

THE RELATIONSHIP BETWEEN OCCUPATIONAL HEALTH AND ORGANISATIONAL CULTURE



As illustrated in figure 3.4, the aim of the theoretical model is to conceptualise the relationship between organisational culture and occupational health. The figure indicated the definition of organisational culture, used to the direct the study**,** namely: "Organisational culture is an integrated pattern of behaviour, which is unique to a particular organisation and which originated as a result of the survival process and interaction with its environment. Culture directs the organisation to goal attainment. Newly appointed employees must be taught what the correct way of behaving is" (Martins in Martins & Coetzee, 2007, p. 21). As indicated, organisational culture is grouped into change management, interpersonal relations, management processes, organisational strategy, task systems and technical environment.

The definition of health by Mathis and Jackson (1982, p. 385) states that health is “a general state of physical, mental and emotional well-being”. The current study focused on anxiety and insomnia, social dysfunction and somatic symptoms to indicate the health status of an organisation.

A healthy workplace is not simply one in which employees eat health food, exercise and reduce their physically unhealthy behaviours. Instead, the organisation needs to adopt a comprehensive approach to optimising both employee and organisational outcomes. To create a healthy workplace, employees must be actively involved in shaping organisational practices. Effective employee involvement will increase employee ownership of new programmes and policies, which will allow the practices to become more easily integrated in the organisational culture (Grawitch, Ledford, Ballard, & Barber, 2009).

A healthy job is likely to be one in which the pressures on employees are appropriate in relation to their abilities and resources to the extent of control they have over their work and the support they receive. Health is not merely the absence of disease or infirmity, but also a positive state of complete psychical, mental and social well-being (WHO, 1986). A healthy environment is one in which there is not only an absence of harmful conditions, but an abundance of health promoting initiatives. Hence managers need to understand the importance of human resources as a prerequisite for effective production as well as a healthy and safe workplace. These two concepts are not a top priority during the decision-making process (Hasle & Jensen, 2006).

3.9 CHAPTER SUMMARY

This chapter introduced the concept of occupational health by providing the background to the concept and formulating a definition. The importance of occupational health was explained by providing more information on the symptoms of ill health. The concept of occupational health was further clarified by occupational health models. The chapter concluded with a discussion on how occupational health can be improved in organisations. The chapter ended by elaborating on the possible relationship between organisational culture and occupational health.

CHAPTER 4

THE EMPIRICAL RESEARCH

4.1 INTRODUCTION

The aim of this chapter is to discuss the empirical aims as highlighted in chapter 1. The measuring instruments and the statistical processes that were used in this study will be outlined. In addition, the population and sample will be explained and the research hypotheses formulated. The chapter will conclude with a chapter summary.

4.2 POPULATION AND SAMPLE

Power (De Vos, Strydom, Fouche, & Delport, 2002) defines a population as a set of entities in which all the measurements of interest to the practitioner or researcher are represented. The study of a population may be said to be exhaustive in that it includes an investigation of every entity under consideration. In other words, a study of the populations is a study of the whole. However, a carefully selected sample can be used to represent the population. The sample reflects the characteristics of the population from which it is drawn. Sampling methods are classified as either probability or nonprobability methods. In probability samples, each member of the population has a known nonzero probability of being selected. Probability methods include random, systematic and stratified sampling. In nonprobability sampling, members are selected from the population in a nonrandom manner. The advantage of probability sampling is that sampling can be calculated. Sampling error is the degree to which a sample may differ from the population (Reis & Judd, 2000).

The research was conducted in nine regions of a South African ICT organisation. The population for the present study was defined as the total number of staff in the regions and included all job levels of staff. This represented a population of 462 staff members.

Owing to operational requirements and the fact that the staff were deployed in nine different regions, the questionnaires were made accessible via an online website for a period of two weeks. The different regions also received hard copies of the questionnaires, for individuals who did not have internet access.

According to De Vos (2002), a population of approximately 500, 20% or alternatively 100 respondents, should participate in the research in order to be representative of the population. In this research study, 184 staff members completed the questionnaires. This represented a sample of 39.8% of the population.

4.3 DESCRIPTION OF THE MEASURING INSTRUMENTS

The survey research method involved the administration of a questionnaire which included a biographical questionnaire, the General Health Questionnaire and a Culture Questionnaire, namely the South African Culture Inventory, to the respondents. According to Church and Waclawaski (1998, p. 5), a survey is “a systematic process off data collection to quantitatively measure specific aspects of organisational members’ experience as they relate to work”.

4.3.1 Description and scoring of the measuring instruments

The questionnaire used in the research study consisted of three sections. Section 1 contained the biographical information and section 2 the general health questions. Section 3 comprised the culture questions.

The questionnaires were incorporated into one document, which included a biographical questionnaire as well as an introduction to explain the purpose of the study.

4.3.2 Biographical component of the measurements

The purpose of the biographical component was to establish whether biographical variables had an influence on general health and organisational culture. Regions were also included to identify cultures in the different branches. The following personal information was included:

- age
- race
- gender
- occupation
- department
- region
- marital status
- dependants
- length of service
- reporting structure/line.

4.3.3 General Health Questionnaire

4.3.3.1 Purpose

The General Health Questionnaire, developed and published by David Goldberg in 1988 (Goldberg & Williams, 2006), was adapted in order to meet the requirements of the organisation concerned. This was done by excluding questions relating to severe depression. The aim of the General Health Questionnaire is to measure well-being in the organisation.

4.3.3.2 Dimensions

The General Health Questionnaire consisted of 21 items to measure three dimensions, namely somatic symptoms, anxiety and insomnia, and social dysfunction. Each of the dimensions consisted of a number of statements combined to provide a total score for each dimension.

4.3.3.3 Measurement scale

The General Health Questionnaire utilises a Likert-type scaling method. The final scores of the different dimensions are obtained by calculating a mean score for each dimension. The object of Likert scaling is to select a set of items that constitutes an internally consistent scale (Dawis, 2000).

The severity scales for the GHQ are defined as follows:

Severity level 1: Much worse than usual

Severity level 2: Worse than usual

Severity level 3: Same as usual

Severity level 4: Better than usual

4.3.3.4 Validity and reliability

The General Health Questionnaire has been used in the South African context in previous research studies, but was adapted to make it specific to the environment. The reliability and validity results are of paramount importance in the data analysis process. However, The GHQ-28 is a frequently used to measure psychological well-being in Western Europe and has proven to be a valid and reliable instrument for comparisons between patients from different countries (Goldberg & Williams, 2006).

4.3.4 Culture Questionnaire

4.3.4.1 Purpose

The South African Culture Instrument (SACI) has been used in organisations since 1989. The questionnaire assesses organisational culture in terms of leadership, achieving objectives, management processes, employee needs and objectives, vision and mission, and external environment, as well as a diversity strategy that is a vital factor because of South African employment equity standards that have to be adhered to (Martins & Von der Ohe, 2003).

4.3.4.2 Measurement scale

The Culture Questionnaire also utilises a Likert-type scaling method. The final scores of the different dimensions are obtained by obtaining a mean score for each dimension. As explained above, the objective of Likert scaling is to select a set of items that constitutes an internally consistent scale (Dawis, 2000).

The respondents had to choose one of the following options, when answering statements:

- strongly disagree
- disagree
- unsure
- agree
- strongly agree.

4.3.4.3 Dimensions

In order to measure organisational culture, the following dimensions were included in the questionnaire:

- mission
- goals
- core values
- communication
- decision making
- innovation process
- formulating objectives
- employee needs and objectives
- external environment: community involvement
- physical environment
- training and development
- people management

- management of change
- organisational structure
- support services (e.g. IT, HR, Payroll, Finance, Marketing)
- interpersonal relations: manager versus worker
- interpersonal relations: interdepartmental relations
- interpersonal relations: diversity
- leadership.

4.3.4.4 Validity and reliability

As stated in chapter 1, the South African Culture Instrument (SACI) has been used in organisations since 1989 and has proven to be a valid and reliable measurement The overall reliability of the SACI in previous studies was measured at 0.933 (Cronbach's alpha), while the internal consistency of the dimensions is between 0.655 and 0.932 (Martins, Martins,& Terblanche, 2004).

4.4 SELECTING AND JUSTIFYING THE USE OF THE MEASURING INSTRUMENTS

According to Given (2008), the questionnaire research method is the main instrument for collecting data in survey research. A questionnaire consists of standardised questions, often called items, which follow a fixed scheme in order to collect individual data on one or more specific topic. The questionnaire is often administered in a standardised fashion, that is, in the same way to all the respondents in the survey. The logic behind the standardisation of questions and answers is that only if a stimulus is the same for all the respondents in the survey is it possible, at least theoretically, to obtain the same (symbolic, cognitive, psychological and social) reaction from the survey method. Responses obtained for various individuals should be comparable.

The study made use of electronic surveys, although a few paper-and-pencil surveys were received. The paper-and-pencil surveys were, however, captured electronically by an independent third party. According to Jansen, Corley, and Jansen (Reynolds, Woods, Baker, 2007), the three most common reasons for choosing electronic surveys over paper-and-pencil surveys are

- decreased costs
- faster response times
- increased response rates.

Roberts (Reynolds et al., 2007) mentions the following opportunities and constraints associated with electronic surveys and measures, a per table 4.1:

TABLE 4.1

OPPORTUNITIES AND CONSTRAINTS: ELECTRONIC SURVEYS AND MEASURES

Opportunities	**Constraints**
Sampling: Access to worldwide population Access to specialised population Increased statistical power	Results not generalised: Coverage error Sample biases
Potential savings: Time Resources Costs	Poor response rates
Unique capabilities: Multimedia graphics and sound Programmability	Possible nonequivalence of measure
Reduction in errors: Item completion Automated data entry	Lack of control over research setting

Opportunities	Constraints
Convenience	Technological limitation: Hardware Software Technical knowledge
Reduced demand characteristics	Limitations imposed by the service provider: Time Cooperation and goodwill
Advantages for the research participant: Convenience Voluntary nature enhanced Tailored questions Immediate feedback possible	Limitations of the researcher: Technical knowledge Netiquette
	Limitations of the research participants: Computer literacy Hardware and software compatibility Distractions

Because the questionnaire was distributed in one organisation in the infrastructure technology industry, most of the constraints were addressed as a result of

- top management's involvement and participation
- the computer literacy levels of the staff members
- voluntary and confidential participation in the study
- the software program used.

4.4.1 Administration of the questionnaire

Although the questionnaires are available in paper-and-pencil and electronical format, owing to the different geographical locations, the researcher decided to distribute the questionnaire via a web link. The electronic responses received were stored on a data file on the web-based server and read into a software system.

Hard copies were also distributed to staff members who did not have access to a personal computer. The completed questionnaires were then securely returned to the researcher via a fax line, directly connected to the researcher's personal computer and manually captured. The respondents were required to complete the biographical information and the questionnaires, by ticking the applicable answer.

4.4.2 Reliability and validity of the measuring instruments

Reliability is a property of scores in a particular sample, not of tests in an absolute way. Although score reliability is a prerequisite for score validity, the former does not guarantee the latter. It is thus necessary to evaluate the score validity (Kline, 2009).

4.4.3 Reliability of the questionnaires

Reliability comes into play when variables developed from summated scales are used as predictor components in objective models. Since summated scales are an assembly of interrelated items designed to measure underlying constructs, it is necessary to know whether the same set of items would produce the same responses if the same questions were to be re-administered to the same respondents. Variables derived from test instruments are declared to be reliable only when they provide stable and reliable responses over a repeated administration of the test. One of the most popular reliability statistics in use today, is Cronbach's alpha. The method is used to determine the internal consistency or average correlation of items in a survey instrument (Reynaldo & Santos, 1999). The recommendation for a suitable criterion for established instruments is around 0.70 (Hair, Anderson, Tatham, & Black, 1992). The reliability of both questionnaires was determined again.

4.4.4 Validity of the questionnaires

Hair et al.(1992) define validity as the ability of a construct's indicators to measure accurately the concept under investigation. Validity is determined by a great extent by the researcher, because the original definition of the construct or concept is proposed by the researcher and must be matched to the selected indicators or measures. Validity and reliability are two separate but interrelated conditions.

In this study, factor analysis was used to determine construct validity of both questionnaires. Factor analysis refers to the statistical techniques whose common objective is to represent a set of variables in terms of a smaller number of hypothetical variables (Kim & Mueller, 1978). Hence factor analysis can be used for theory and instrument development and assessing the construct validity of an established instrument when administered to a specific population (Pett, Lackey, & Sullivan, 2003). According to Mayer (2009), construct validity is the degree to which the original construct theory in the theory chapter of a research study and the variables in the empirical section are aligned.

4.5 DATA COLLECTION

A proposal was submitted to the employer of the researcher in the infrastructure technology environment. After receiving the approval from the Head of Human Resources, the researcher presented the proposal to the Executive Committee to explain the research purpose, measuring instruments, administration of the survey, the costs involved and the value of participating in the survey. The researcher sent a cover letter via email to motivate the staff to participate in the survey and to explain confidentiality and the value of participating in the study. The link to the electronic questionnaire was included in the email. The researcher decided to distribute paper-based questionnaires to the staff members who did not have access to a personal computer. The paper-based questionnaires were returned to the researcher and captured manually. The data analysis will be explained below.

4.6 STATISTICAL ANALYSIS

The following statistical analysis techniques were deemed to be the most relevant to the research study:

4.6.1 Descriptive statistics

Descriptive statistics can be defined as a data analysis technique that enables the researcher to meaningfully describe data with numerical indices or in graphical form (Fraenkel & Wallen, 2006). In this study, the descriptive statistics calculated for the sample were provided to indicate geographical spread, age, gender, occupational levels and the length of service. The data gathered via the biographical questionnaire will be presented in graphs and tables to indicate the results.

4.6.2 Cronbach's alpha

Cronbach's alpha is a commonly used measure to test the extent to which multiple indicators for a latent variable belong together. Cronbach's alpha is an index of reliability associated with the variation accounted for by the true score of the “underlying construct”. The alpha coefficient ranges in value from 0 to 1 and may be used to describe the reliability of factors extracted from dichotomous (i.e. questions with two possible answers) and/or multipoint formatted questionnaires or scales (i.e. rating scale: 1 = poor, 5 = excellent). The higher the score, the more reliable the generated scale is (Santos,1999, p. 2). In this study, Cronbach's alpha was used to determine the reliability of both questionnaires.

4.6.3 Exploratory factor analysis

Exploratory factor analysis is a statistical procedure designed for situations in which links between the observed and latent variables are unknown or uncertain. The analysis proceeds in an exploratory manner to determine how and to what extent the observed variables are linked to their underlying factors (Byrne, 2001).

4.6.4 Structural equation modelling (SEM)

SEM includes an entire family of models such as covariance structure analysis, latent variable analysis and confirmatory factor analysis (Hair, Anderson, Tatham, & Black, 1998). SEM techniques are distinguished by the following two characteristics:

- an estimation of multiple and interrelated dependence relationships
- the ability to represent unobserved concepts in these relationships and account for measurement error in the estimation process.

The basic composition of the SEM model can be decomposed into two submodels, namely a measurement model and a structural model. The measurement model defines relations between the observed and the unobserved variables. Hence it provides the link between scores on a measurement instrument (i.e. observed indicator variables) and the underlying constructs they are designed to measure (i.e. the unobserved latent variables). The measurement model represents the confirmatory factor analysis model in that it specifies the pattern according to which each measure loads on a particular factor. The structural model, however, defines the relationships between the unobserved variables. Accordingly, it specifies the manner in which particular latent variables directly or indirectly influence changes in the values of certain other latent variables in the model (Byrne, 2001).

According to Hair et al. (1998) the following steps should be taken when using SEM:

- Develop a theoretical based model based on causal relationships.
- Construct a path diagram of causal relationships.
- Convert the path diagram into a set of structural equations and specify the measurement model.
- Choose the input matrix type and estimate the proposed model.
- Assess the identification of the structural model.
- Evaluate the goodness-of-fit criteria.
- Interpret and modify the model of theoretical justified.

4.6.5 Advantages and disadvantages of SEM

Garson (2009, pp.1-2) explains that the advantages of SEM, compared to a techniques such as multiple regression analysis, are as follows: more flexible assumptions; use of confirmatory factor analysis to reduce measurement error by having multiple indicators per latent variable; the attraction of SEM's graphical modelling interface; the desirability of testing models overall as opposed to individual coefficients; the ability to test models with multiple dependents; the ability to model mediating variables instead of being restricted to an additive model; the ability to model error terms; the ability to test coefficients across multiple between-subjects groups; and ability to handle difficult data. The SEM strategy of comparing alternative models to assess relative model fit also makes it more robust.

According to Hox and Bechhger (1998), although SEM software and inexpensive computers make it easy to apply SEM to all sorts of data and this can have a positive impact on research, it also makes it easy to misuse the technique, especially if the researcher is not aware of all the technicalities. Martins (2009) compares the advantages and disadvantages of SEM in table 4.2 below.

TABLE 4.2

ADVANTAGES AND DISADVANTAGES OF SEM

Advantages	Disadvantages
1. Offers the possibility of modelling complex dependencies. 2. Models latent variables. 3. Offers the opportunity to analyse dependencies of psychological constructs with measurement errors. 4. Is a powerful analytical tool for developing complex attitudinal/behavioural models where numerous relationships can be assessed simultaneously. 5. Represents a significant step forward in statistical model building and hypothesis testing. 6. Is becoming increasingly widely used in the social sciences. 7. Improved software packages enhance its strengths. 8. There is wider recognition of its strengths.	1. The theory and application are complex. 2. There is a danger of producing models post hoc. 3. Substantive background may be neglected. 4. There are high data requirements. 5. A reasonable sample size is required. 6. It requires comprehensive understanding of its statistical underpinning before it should even be attempted.

Source: Martins (2009, p. 304)

4.6.6 Multiple regression analysis

According to Hair et al. (1998, p. 148), multiple regression analysis is “a statistical technique that can be used to analyse the relationships between a single dependent (criterion) variable and several independent (predictor) variables. The objective of multiple regression analysis is to use the independent variables whose values are known to predict the single dependent value selected by the researcher”.

4.7 SUMMARY AND CONCLUSIONS

In chapter 4, the research design and methodology of the empirical research study were described. The following statistical techniques were deemed appropriate for this research: (1) descriptive statistics; (2) factor analysis; (3) the Cronbach alpha; and (4) SEM to confirm the exploratory factor structure and the theoretically justified model. In chapter 5 the results and findings of the empirical research are discussed.

CHAPTER 5

RESULTS AND FINDINGS OF THE STUDY

5.1 INTRODUCTION

The aim of this chapter is to report on and discuss the results of the research aim as outlined in chapter 1. The chapter commences with the presentation of the descriptive statistics of the sample. The results relating to the reliability and validity of the questionnaires will then be reported and discussed. The organisational culture and health status will be reported and the relationship between organisational culture and occupational health highlighted.

5.2 RESEARCH DESIGN

5.2.1 Research approach

According to Mouton and Marais (1992), the quantitative research approach in the social sciences can be broadly defined as research that is more formalised and controlled. The quantitative category includes experiments, surveys and content analyses (De Vos et al., 2002). Researchers use the survey approach in order to obtain the specific research aims.

5.2.2 Research method

In this study, the survey research method involved administering the applicable questionnaires to the respondents. According to Church and Waclawaski (1998, p. 5), a survey is “a systematic process off data collection to quantitatively measure specific aspects of organisational members’ experience as they relate to work”.

5.2.3 Research participants

One hundred and eighty-four staff members participated in the study which was conducted in the information technology environment. The questionnaires were distributed electronically via email.

It was decided to distribute paper-based questionnaires to the staff members who did not have access to a personal computer. The paper-based questionnaires were returned to the researcher and captured manually. The data analysis will be explained below.

5.3 DESCRIPTIVE STATISTICS

The descriptive statistics calculated for the sample are provided to indicate the geographical spread, age, gender, occupational levels and length of service of the participants. The data gathered by means of the biographical questionnaire are presented in tables 5.1 to 5.5.

TABLE 5.1

IN WHICH REGION DO YOU WORK?

Response	Frequency	Percent	0	20	40	60	80	100
Eastern Cape	5	2.7%						
Free State	10	5.4%						
Gauteng	121	65.8%						
KZN	11	6.0%						
Limpopo	2	1.1%						
Mpumalanga	5	2.7%						
Northern Cape	9	4.9%						
North West	7	3.8%						
Western Cape	11	6.0%						
No response	3	1.6%						

TABLE 5.2

AGE GROUPS

Response	Frequency	Percent	0	20	40	60	80	100
25 years or younger	51	27.7%						
26 - 35 years	93	50.5%						
36 - 45 years	25	13.6%						
46 - 55 years	12	6.5%						
56 years and older	2	1.1%						
No response	1	0.5%						

TABLE 5.3
GENDER GROUPS

Response	Frequency	Percent	0	20	40	60	80	100
Male	115	62.5%						
Female	64	34.8%						
No response	5	2.7%						

TABLE 5.4
OCCUPATIONAL LEVELS

Response	Frequency	Percent	0	20	40	60	80	100
Administrative	23	12.5%						
Management Level	49	26.6%						
Executive Management	4	2.2%						
Learner	7	3.8%						
Technical Support	67	36.4%						
Specialist	13	7.1%						
Other	18	9.8%						
No Responses	3	1.6%						

TABLE 5.5
LENGTH OF SERVICE

Response	Frequency	Percent	0	20	40	60	80	100
Less than 6 months	17	9.2%						
6 months to 1 year	31	16.8%						
1 to 2 years	47	25.5%						
2 to 5 years	56	30.4%						
5 to 10 years	24	13.0%						
11 years or more	6	3.3%						
No Response	3	1.6%						

Tables 5.1 to 5.5 provide an overview of the biographical information of the participants in the survey. From the information provided, it can be concluded that most of the responses received were from the Gauteng region. This result was expected because the company's head office is in Gauteng. The most responses were submitted by the 26 to 35 age group, males, the technical support job level, with two to five years of service at the specific company.

5.4 RESULTS

5.4.1 Reliability statistics and factor analysis of the Culture Questionnaire

Kaiser's criterion and scree plot were used to determine the number of factors that should be included in the measurement. The principal axis factoring was postulated and the factor matrix obtained was rotated to a simple structure by means of Varimax rotation. The eigenvalues, scree plots and rotated factor matrices for the two questionnaires will now be discussed.

TABLE 5.6

KMO MEASURE AND BARTLETT'S TEST: CULTURE QUESTIONNAIRE

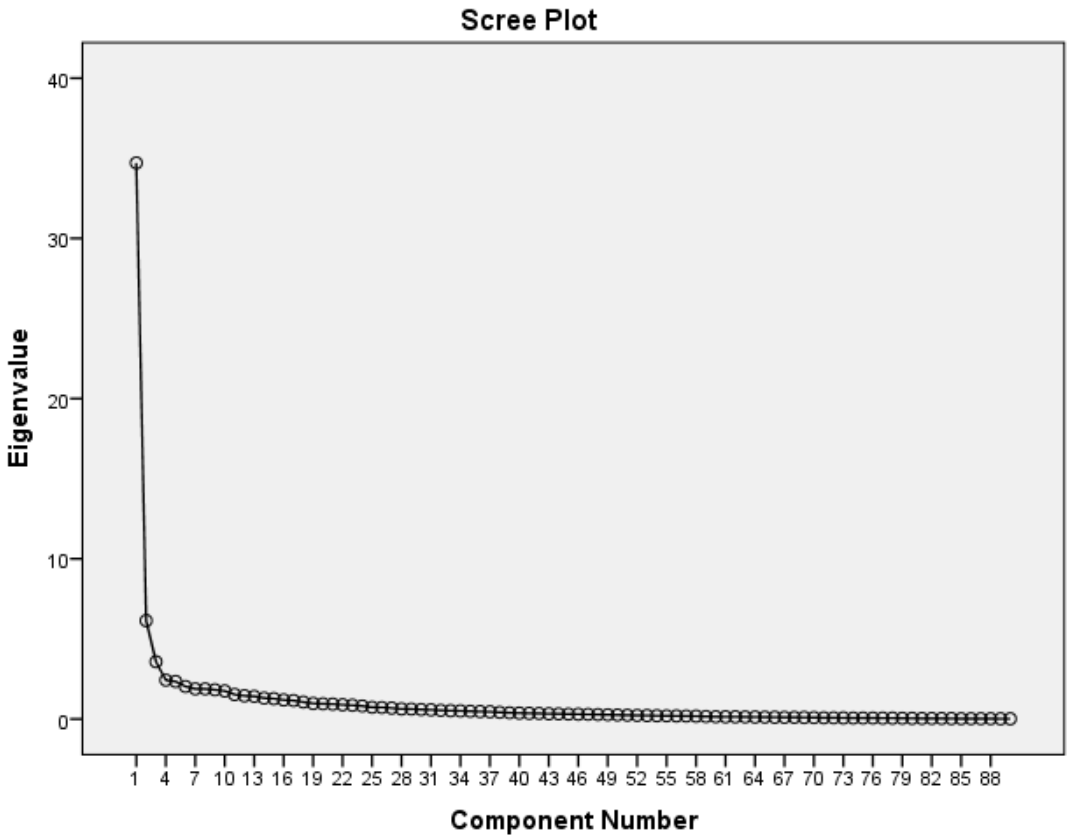
KMO and Bartlett's test

Kaiser-Meyer-Olkin measure of sampling adequacy		.862
Bartlett's test of sphericity	Approx. chi-square	12437.525
	df	4005
	Sig.	.000

Based on Kaiser's criterion, 18 factors were postulated (see table 5.8 below). As indicated in table 5.6 above, the KMO test for measuring sample adequecy and Bartlett's test of sphericity displayed satisfactory results. The KMO value (0.862) was greater than 0.7, which means that the data set was likely to factor well. Bartlett's test rejects the hypothesis at $p < 0.001$, that the correlation is an identity matrix, without significant correlations between variables. Both diagnostic tests confirmed that the data were suitable for factor analyis.

FIGURE 5.1

SCREE PLOT – FACTOR ANALYSIS: CULTURE QUESTIONNAIRE



According to the eigenvalues in table 5.7, 18 factors had eigenvalues greater than 1.0, which is a common criterion for a factor analysis to be used. The researcher included the 19th factor as well, which was supported by the scree plot of the 19-factor solution.

TABLE 5.7

EIGENVALUES AND TOTAL VARIANCE EXPLAINED BY THE FACTORS OF CULTURE

Total variance explained

Component	Initial eigenvalues			Extraction sums of squared loadings			Rotation sums of squared loadings		
	Total	% of variance	Cumulative %	Total	% of variance	Cumulative %	Total	% of variance	Cumulative %
1	34.709	38.566	38.566	34.709	38.566	38.566	13.865	15.406	15.406
2	6.141	6.823	45.389	6.141	6.823	45.389	7.845	8.717	24.123
3	3.575	3.972	49.361	3.575	3.972	49.361	7.150	7.944	32.067
4	2.428	2.697	52.058	2.428	2.697	52.058	4.748	5.276	37.343
5	2.340	2.601	54.659	2.340	2.601	54.659	4.589	5.099	42.442
6	2.031	2.257	56.916	2.031	2.257	56.916	3.358	3.732	46.174
7	1.880	2.089	59.005	1.880	2.089	59.005	3.301	3.667	49.841
8	1.876	2.085	61.090	1.876	2.085	61.090	2.657	2.953	52.793
9	1.823	2.025	63.115	1.823	2.025	63.115	2.657	2.952	55.746
10	1.750	1.945	65.060	1.750	1.945	65.060	2.547	2.830	58.576
11	1.530	1.700	66.760	1.530	1.700	66.760	2.480	2.756	61.332
12	1.450	1.612	68.372	1.450	1.612	68.372	2.289	2.544	63.876
13	1.415	1.572	69.944	1.415	1.572	69.944	2.224	2.471	66.347
14	1.304	1.448	71.392	1.304	1.448	71.392	2.131	2.368	68.715
15	1.271	1.412	72.804	1.271	1.412	72.804	1.968	2.187	70.902
16	1.188	1.320	74.124	1.188	1.320	74.124	1.879	2.088	72.990
17	1.157	1.286	75.410	1.157	1.286	75.410	1.752	1.947	74.937
18	1.058	1.175	76.585	1.058	1.175	76.585	1.483	1.648	76.585
19	.970	1.078	77.664						
20	.949	1.055	78.718						
21	.929	1.032	79.751						

Factor analysis was used to assess whether the instrument measured substantive constructs (construct validity). The results of the factor analysis revealed that 19 constructs postulated organisational culture. The results are indicated in table 5.8 and were as follows: vision and mission; core values and key success factors; control; communication; decision making; innovation; employee needs and objectives; client focus; corporate social investment; physical environment; training and development; people management; management of change; organisational structure; support services; manager versus worker; interdepartmental relationships; diversity; and leadership. The results of the reliability analysis show that the construct reliability coefficients ranged from 0.699 to 0.967. As explained elsewhere, the recommendation for a suitable criterion for established instruments is around 0.70 (Nunnally in Martins et al., 2007; Hairet al., 1992). The Cronbach alpha may decrease to 0.60 in research such as exploratory research (Hair et al., 1998).

TABLE 5.8
RELIABILITY OF THE CULTURE QUESTIONNAIRE

Cronbach alpha		
Construct	**N of items**	**Reliability coefficient**
Mission	4	.876
Goals	3	.828
Core values	6	.805
Communication	4	.795
Decision making	3	.756
Innovation process	4	.809
Formulate objectives	3	.737
Employee needs and objectives	5	.785
External environment: community Involvement	3	.891
Physical environment	3	.699
Training and development	4	.795
People management	7	.825
Management of change	8	.872
Organisational structure	5	.702
Support services	3	.943
Interpersonal relations: manager versus worker	5	.842
Interpersonal relations: interdepartmental relations	5	.876
Interpersonal relations: diversity	4	.806
Leadership	11	.967

TABLE 5.9

RESULTS OF THE CULTURE QUESTIONNAIRE

Results of Culture Survey											
Results of Dimensions											
			Category percentages								
Groups	Count	Mean	0	20	40	60	80	100	Favourable	Neutral	Unfavourable
Leadership	182.9	3.81					72.5%		72.5%	13.4%	14.1%
Physical environment	180.3	3.62					68.7%		68.7%	13.7%	17.6%
Core values	180.7	3.54					61.2%		61.2%	21.8%	17.1%
Decision making	180.7	3.45					59.7%		59.7%	20.3%	19.9%
Mission	181.3	3.44		23.2%			57.8%		57.8%	23.2%	19.0%
Support services	181.7	3.43		26.1%			55.6%		55.6%	26.1%	18.4%
Employee needs and objectives	181.2	3.42					56.6%		56.6%	20.8%	22.6%
Interpersonal relations - Diversity	182.5	3.39		26.6%			54.5%		54.5%	26.6%	18.9%
Interpersonal relations - Manager vs Worker	180.6	3.39					58.3%		58.3%	19.4%	22.3%
Innovation process	180.8	3.37		26.7%			53.8%		53.8%	26.7%	19.5%
Formulate objectives	181.3	3.35	23.2%	23.9%			52.9%		52.9%	23.9%	23.2%
Management of Change	181.4	3.33		28.2%			51.4%		51.4%	28.2%	20.4%
Interpersonal relations - Interdepartmental relations	181.4	3.31	23.9%	24.4%			51.7%		51.7%	24.4%	23.9%
Organisational structure	181.2	3.31		28.6%			50.8%		50.8%	28.6%	20.6%
Goals	181.7	3.24	25.1%	25.5%			49.3%		49.3%	25.5%	25.1%
Training and development	182.0	3.23	23.8%	30.1%			46.2%		46.2%	30.1%	23.8%
People management	180.6	3.13	26.1%	31.9%			42.0%		42.0%	31.9%	26.1%
External environment - Community Involvement	180.3	3.10		52.1%			29.6%		29.6%	52.1%	18.3%
Communication	182.0	3.02	36.7%				42.0%		42.0%	21.3%	36.7%
Overall average	181.4	3.39		24.3%			54.7%		54.7%	23.3%	21.0%

Count = Number of respondents - All respondents did not respond to all statements in each dimension
Mean = The total of the scores divided by the number of responses

CATEGORY PERCENTAGES / SCALES
Green Bar (Favourable %) = 5 - Strongly agree
Yellow Bar (Neutral%) = 3 - Unsure
Red Bar (Unfavourable %) = 2 - Disagree, 1 - Strongly disagree

The mean scores were used to indicate the overall culture in the organisation. The recommended cut-off score of 3.2 (on the 5-point Likert scale) can be used to differentiate between potential positive dimensions and negative dimensions (Odendaal in Castro & Martins, 2010).

The overall strengths of the organisation, as indicated in table 5.9 were as follows:

- Leadership (mean of 3.81 and 72.5%, favourable). The respondents indicated that they get along with their immediate manager/supervisor (79.8%) and that their immediate manager/supervisor was competent and knew his/her job (79.8%).

- Physical environment (mean of 68.7% favourable). This had to do with the way the staff dress to support the company's image (72.2%) and the physical appearance of the building, offices, equipment, furniture and reception area (71.4%).
- Core values (mean of 3.54 and 61.2%, favourable). This involved in particular the fact that staff feel that the company provides products/services that are totally free from any discrimination (75.6%). Employees also indicated that staff respect and protect the property and possessions of the company and do not take anything belonging to the company.
- Decision making (mean of 3.45 and 59.7% favourable). The participants indicated that their work environment can be described as participative (73.6%).
- Mission (mean of 3.44 and 57.8% favourable). The respondents indicated that they fully understand the mission of the company (70.3%).

The results of the Culture Questionnaire, as shown in table 5.9, indicate that the three developmental areas were as follows:

- Communication (mean of 3.02 and 37.7% strongly disagree).This related in particular to the fact that staff felt that they did not know what the other divisions are doing.
- People management (mean of 3.13 and 26.1% strongly disagree). Staff felt that the remuneration system was unfair, and that the performance evaluations were not followed by development interviews, during which training and development actions could be jointly planned with employees.
- External environment (mean of 3.10 and 18.3% strongly disagree). Staff felt that the firm did not share its success with the community, its involvement with the community or respect for the environment.
- The overall organisational culture could be described as positive because of the overall mean score of 3.39.

5.4.1.2 Reliability and factor analysis of the General Health Questionnaire

TABLE 5.10

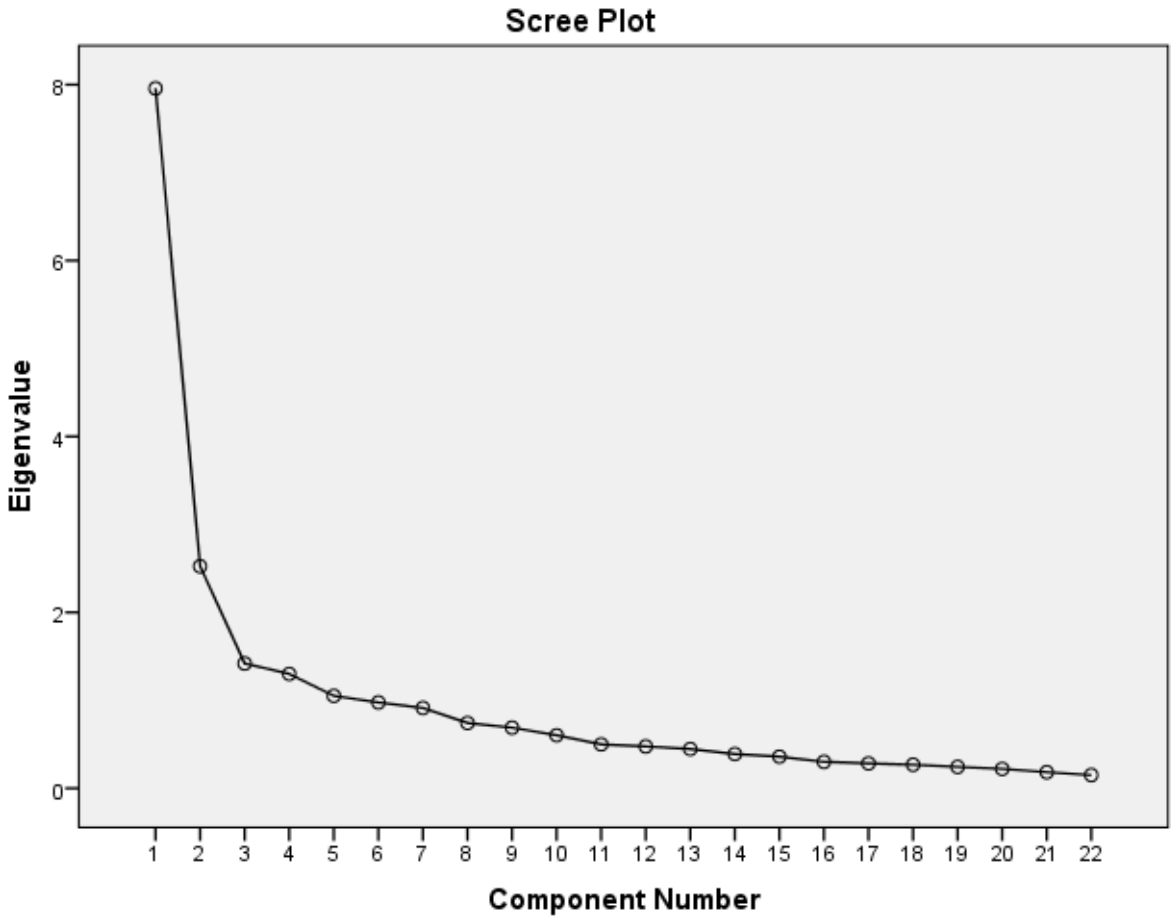
KMO MEASURE AND BARTLETT'S TEST: GHQ

KMO and Bartlett's test

Kaiser-Meyer-Olkin measure of sampling adequacy		.875
Bartlett's test of sphericity	Approx. chi-square	1841.287
	df	231
	Sig.	.000

FIGURE 5.2

SCREE PLOT – FACTOR ANALYSIS: GHQ



Based on Kaiser's criterion, five factors were postulated (see table 5.10). This is supported by the scree plot above (figure 5.2).

As indicated in table 5.10, the KMO test for measuring sample adequecy and Bartlett's test of sphericity displayed satisfactory results. The KMO value (0.875) was greater than 0.7, which means that the data set was likely to factor well. Bartlett's test rejects the hypothesis at $p < 0.001$, that the correltation is an identity matrix, without significant correlations between variables. Both diagnostic tests confirmed that the data were suitable for factor analyis.

Although five components appeared to have an eigenvalue greater than 1.00, which is deemed significant, the extracted sum of squared values and the rotation sum of squared values indicated that three factors accounted for 54.1% of the total variance, based on the cumulative percentage of eigenvalues. This percentage is above the criterion. According to Hair et al. (1998), a solution in the social sciences should account for 60% and even less of the variance. The three-factor structure appears to provide a satisfactory solution. As discussed in chapter 1, "severe depression”, which constitutes factors 4 and 5, was omitted because these factors are within in the scope of clinical psychology. The results were based on the original theoretical model and not only on the factor analysis results.

TABLE 5.11

EIGENVALUES AND TOTAL VARIANCE EXPLAINED BY THE FACTORS OF THE GHQ

Total variance explained

Component	Initial eigenvalues			Extraction sums of squared loadings			Rotation sums of squared loadings		
	Total	% of variance	Cumulative %	Total	% of variance	Cumulative %	Total	% of variance	cumulative %
1	7.958	36.173	36.173	7.958	36.173	36.173	4.794	21.789	21.789
2	2.524	11.474	47.647	2.524	11.474	47.647	3.252	14.784	36.573
3	1.419	6.450	54.097	1.419	6.450	54.097	2.635	11.976	48.549
4	1.301	5.913	60.010	1.301	5.913	60.010	2.366	10.753	59.303
5	1.051	4.777	64.787	1.051	4.777	64.787	1.206	5.484	64.787
6	.976	4.438	69.224						
7	.914	4.153	73.378						
8	.743	3.375	76.753						
9	.690	3.134	79.887						
10	.603	2.743	82.630						
11	.499	2.266	84.896						
12	.476	2.165	87.061						
13	.447	2.030	89.091						
14	.389	1.769	90.860						
15	.360	1.638	92.498						
16	.301	1.369	93.867						
17	.283	1.287	95.155						
18	.268	1.219	96.373						
19	.244	1.107	97.480						
20	.221	1.004	98.485						
21	.183	.831	99.316						
22	.150	.684	100.000						

TABLE 5.12

RELIABILITY OF THE GHQ

Cronbach alpha		
Construct	**N of items**	**Reliability coefficient**
Somatic symptoms	7	.843
Anxiety and insomnia	7	.902
Social dysfunction	7	.797

As indicated in table 5.12, the Cronbach alpha for the constructs, somatic symptoms (.843), anxiety and insomnia (.902) and social dysfunction (.797) was higher than the recommended 0.70. This confirms that the construct was reliable in determining general health.

TABLE 5.13

OVERAL RELIABILITY OF THE GHQ

Cronbach alpha	**N of Items**
0.912	21

The reliability statistics as determined by Cronbach alpha indicated that the overall reliability of the GHQ was 0.912, which indicates that the questionnaire is reliable in determining general health. The questionnaire constructs, namely somatic symptoms, anxiety and insomnia, and social dysfunction were proven to be reliable.

TABLE 5.14
RESULTS OF THE GHQ

Results of General Health Survey												
			Category percentages									
Questions	Count	Mean	**0**	**20**	**40**	**60**	**80**	**100**	1	2	3	4
Somatic symptoms												
Have you recently been having hot or cold spells	180	3.49			25.6%		64.4%		5.6%	4.4%	25.6%	64.6%
Have you recently been getting scared or panicky for no good reason	180	3.44			25.0%		61.7%		3.9%	9.4%	25.0%	61.7%
Have you recenlty felt that you are playing a useful part in things	179	3.44			31.8%		57.0%		2.2%	8.9%	31.8%	57.0%
Have you recently been feeling nervous and strung-up all the time?	179	3.34			35.2%		50.8%		2.8%	11.2%	35.2%	50.8%
Have you recently felt on the whole you were doing things well	177	3.31			49.7%		41.2%		1.1%	7.9%	49.7%	41.2%
Have you recently felt that you are ill	180	3.29			33.9%		48.9%		2.2%	1.5%	33.9%	48.9%
Have you recently felt satisfied with the way you've carried out your tasks	180	3.29			39.4%		46.1%		2.8%	11.7%	39.4%	46.1%
Anxiety and insomnia												
Have you recently felt capable of making decisions about things?	180	3.27			45.6%		43.3%		5.0%	6.1%	45.6%	43.3%
Have you recently had difficulty in staying asleep once you fell asleep	182	3.27			27.5%		53.3%		7.1%	12.1%	27.5%	53.3%
Have you recently been managing to keep yourself busy and occupied	181	3.21			55.3%		34.3%		2.8%	7.7%	55.2%	34.3%
Have you recently been getting a feeling of tightness or pressure in your head	180	3.19			34.4%		44.4%		4.4%	16.7%	34.4%	44.4%
Have you recently been getting pains in your head	180	3.13			35.6%		41.7%		6.1%	16.7%	35.6%	41.7%
Have you recently been taking longer over the things you do?	181	3.08			59.1%				1.1%	14.9%	59.1%	24.9%
Have you recently been getting edgy and bad-tempered	182	3.07			34.6%		40.7%		8.8%	15.9%	34.6%	40.7%
Social dysfunction												
Have you recently been feeling in need of a good tonic	182	3.05			31.3%		40.7%		7.1%	20.9%	31.3%	40.7%
Have you recently found everything getting on top of you	183	3.05			43.2%		35.0%		8.2%	13.7%	43.2%	35.0%
Have you recently been feeling perfectly well and in good health	181	3.03			66.9%				2.8%	11.0%	66.9%	19.3%
Have you recently lost much sleep over worry	179	3.00			30.7%		41.9%		14.5%	12.8%	30.7%	41.9%
Have you recently been feeling run down and out of sorts	180	2.97		26.7%	31.7%		35.6%		6.1%	26.7%	31.7%	35.6%
Have you recently felt constantly under strain	181	2.93			34.3%		33.7%		8.8%	23.2%	34.3%	33.7%
Have you recently been able to enjoy your normal day-to-day activities	183	2.92			56.30%				8.2%	13.7%	56.3%	21.9%
Overall averages	180.5	3.18			39.4%		41.9%		5.3%	13.4%	39.4%	41.9%

Count= Number of responents. All respondents did not respond to all statements
Mean=The total of the scores divided by the number of responses (Average Training)
1 and 2 = Challenging (Negative), 3 and 4 = Positive

As in the culture dimension, the mean score were used to indicate overall health in the organisation. A mean score of 1 and 2 indicated challenging or negative dimensions, whereas a mean score of 3 and 4 indicated positive dimensions.

The overall positive dimensions, as indicated in table 5.14 were as follows:

- Have you recently felt on the whole you were doing things well? (A mean of 3.31 and 90.9% felt the statement was positive.)
- Have you recently been having hot or cold spells? (A mean of 3.49 and 90.2% felt the statement was positive.)
- Have you recently felt scared or panicky for no good reason? (A mean of 3.44 and 86.7% felt the statement was positive.)
- Have you recently felt nervous and strung up all the time? (A mean of 3.34 and 86% felt the statement was positive.)
- Have you recently felt that you are playing a useful part in things? (A mean of 3.44 and 88.8% felt the statement was positive.)

The overall negative dimensions, as indicated in table 5.14, were as follows:

- Have you recently lost much sleep because of worry? (A mean of 3.00 and 27.3% felt the statement was challenging.)
- Have you recently felt that you are constantly under strain? (A mean of 2.93 and 32% felt the statement was challenging)
- Have you recently been able to enjoy your normal day-to-day activities? (A mean of 2.92 and 21.9% felt the statement was challenging.).

The overall health dimension can be described as positive because of the overall mean score of 3.18.

5.5 STRUCTURAL EQUATION MODELLING (SEM)

The AMOS statistical program was used for the development of the SEM model.

5.5.1 The SEM process

SEM analysis follows a logical sequence of five steps or processes, as indicated below.

- *Model specification*. The first step in SEM analysis entails using all the relevant theory, research and information to develop a theoretical model. Hence before the researcher starts collecting or analysing data, the particular model needs to be designed using the existing information. A given model is properly specified when the true population model is deemed consistent with the implied theoretical model being tested (Schumacker & Lomax, 2010).
- *Model identification*. The parameters in the specified model must be identified. If all the parameters are identified, the model is called an identified model. A parameter is identified when it takes on a single value, given the model and observed data (Hoyle, 2012).
- *Model estimation*. The goal of model estimation is to find values for the free parameters that minimise the discrepancy between the observed covariance matrix and the estimated or implied covariance, given the model and the data (Schumacker & Lomax, 2010).
- *Model testing*. Once the parameter estimates have been obtained for a specified SEM, the researcher should determine how well the data fit the model. In other words, to what extent is the theoretical model supported by the sample data obtained? There are two areas to consider. Firstly, it is necessary to consider a global-type omnibus test for the fit of the entire model. Secondly, the parameters of the model need to be examined (Schumacker & Lomax, 2010).
- *Model modification or specification*. The evaluation of fit can send the researcher in one of two directions, namely interpretation and reporting or modification. Although interpretation and reporting are the desired direction, often the evaluation of fit does not support the specified model and any alternatives, which will lead to modification. The modification requires

reconsideration of identification, and then a return to estimation and evaluation of fit (Hoyle, 2012).

5.6 SEM: ORGANISATIONAL CULTURE AND OCCUPATIONAL HEALTH

Table 5.15 depicts commonly used graphical notations for the representation of SEM models (Pugesek, Tomer, & Von Eye, 2003). These were used to indicate the results of the SEM model in figure 5.3.

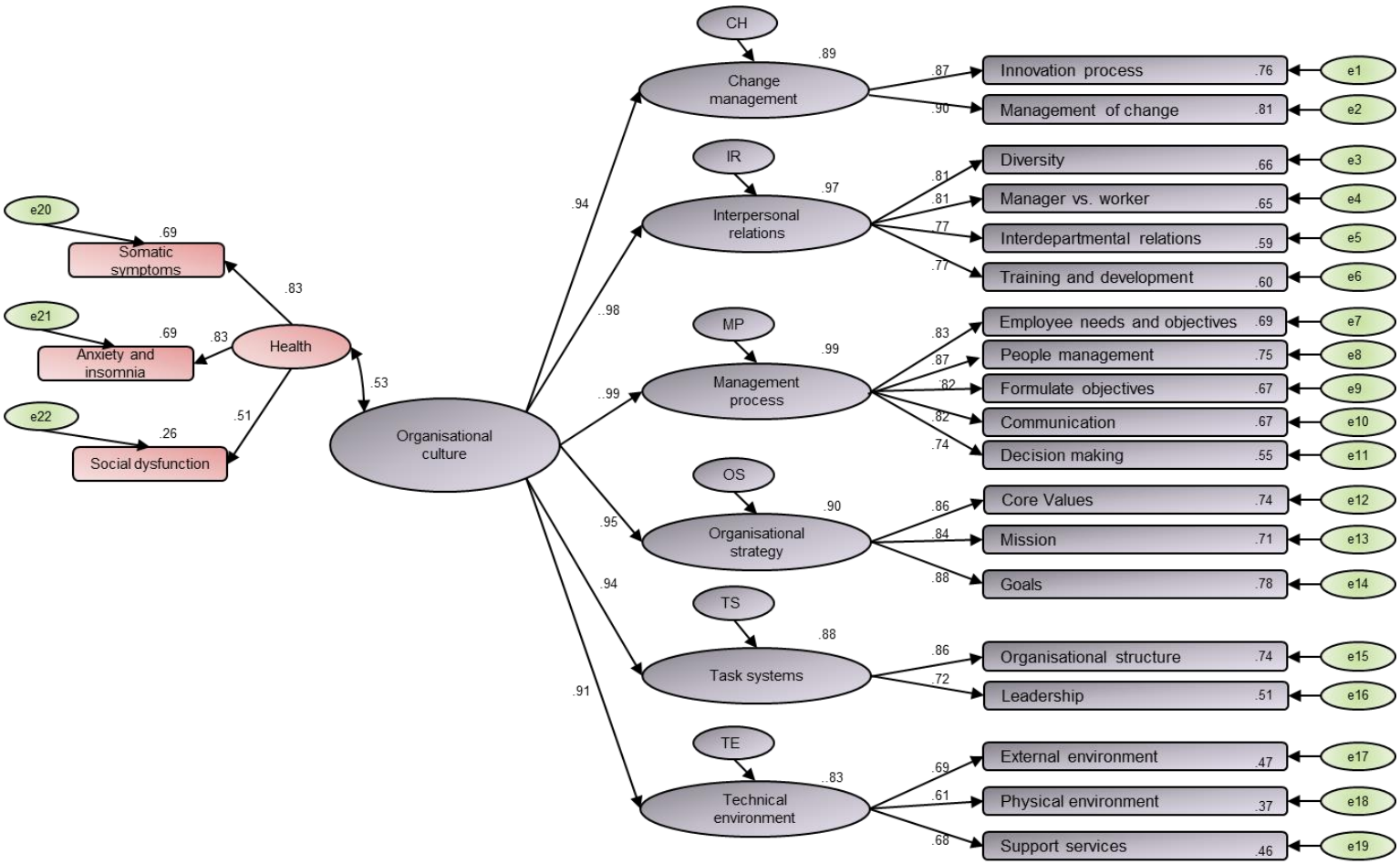
TABLE 5.15
GRAPHICAL NOTATIONS OF SEM

	Latent variable
	Observed variable
	Recursive relation
	Nonrecursive
	Disturbance or structural error in latent variable
	Measurement error in observed variable
	Correlation (symmetric) relation

Source: Pugesek et al (2003)

FIGURE 5.3

SEM



The first model's goodness of fit indices, which are reported in figure 5.3, produced an adequate fit. Thus, no further modification was needed and the first model will be reported on here. In interpreting the regression coefficients (figure 5.3 and tables 5.16 and 5.17), health appears to have had a smaller impact on social dysfunction (estimate of .51) explaining 25.5% of the variance, compared with anxiety and insomnia (estimate of .83), explaining 68.6% of the variance, and somatic symptoms (estimate .83) explaining 68.8% of the variance (see the squared multiple correlations in table 5.16 below). Furthermore, when interpreting the regression coefficients, organisational culture appears to have had a smaller impact on technical environment (estimate .91), explaining 82.5% of the variance, and task systems (estimate 0.94), explaining 87.7% of the variance, as well as change management (estimate .94), explaining 89% of the variance Organisational culture appears to have had a greater impact than organisational strategy (estimate .95), explaining 90% of the variance and interpersonal relations (estimate .98), explaining 96.6% of the variance, as well as management processes (estimate .99), explaining 99% of the variance (see table 5.17).

In interpreting the regression coefficients, change management had a smaller impact on innovation process (estimate .87), explaining 76% of the variance and a greater impact on management of change (estimate .90), explaining 80.8% of the variance.

When interpreting the regression coefficients, interpersonal relations had a smaller impact on interpersonal relations, interdepartmental relations, (estimate .77), explaining 58.9% of the variance, as well as training and development (estimate .77), explaining 59.7% of the variance. Interpersonal relations had a greater impact on interpersonal relations, diversity, (estimate .81), explaining 65.6% of the variance, as well as interpersonal relations, manager versus worker (estimate .81), explaining 65.4% of the variance.

In interpreting the regression coefficients, management process had a smaller impact on communication (estimate .82), explaining 66.7% of the variance, decision making (estimate .74), explaining 54.6% of the variance, as well as and formulate objectives (estimate .82), explaining 66.6% of the variance. Management process had a greater impact on employee needs and objectives (estimate .83), explaining 69.4% of the variance, as well as people management (estimate .87), explaining 75% of the variance.

The regression coefficients of organisational strategy had a smaller impact on mission, (estimate .84), explaining 70.7% of the variance, and core values (estimate .86), explaining 73.9% of the variance. Organisational strategy had a greater impact on goals (estimate .88), explaining 77.9% of the variance. The regression coefficients of task systems had a smaller impact on leadership (estimate .77), explaining 51.4% of the variance, and a greater impact on organisational structure (estimate .88), explaining 73.6% of the variance. The regression coefficients of technical environment had a smaller impact on physical environment (estimate .61), explaining 36.8% of the variance, and support services (estimate .68), explaining 45.6% of the variance. Technical environment had a greater impact on external environment (estimate .69), explaining 47.2% of the variance. The significant differences for the standardised regression weights are indicted in table 5.17.

The correlations are depicted in table 5.16 and indicate mostly high correlations for the culture dimensions. The lowest correlation was for social dysfunction.

TABLE 5.16

SQUARED MULTIPLE CORRELATION: ORGANISATIONAL CULTURE AND HEALTH

	Estimate
Technical environment	0.825
Task systems	0.877
Organisational strategy	0.900
Management process	0.990
Interpersonal relations	0.966
Change management	0.890
Somatic symptoms	0.688
Anxiety and insomnia	0.686
Social dysfunction	0.255
Support services	0.456
Physical environment	0.368
External environment	0.472
Leadership	0.514
Organisational structure	0.736
Goals	0.779
Mission	0.707
Core values	0.739
Decision making	0.546
Communication	0.667
Formulate objectives	0.666
People management	0.750
Employee needs and objectives	0.694
Training and development	0.597
Interpersonal relations (interdepartmental relations)	0.589

	Estimate
Interpersonal relations (management vs worker)	0.654
Interpersonal relations (diversity)	0.656
Management of change	0.808
Innovation process	0.764

TABLE 5.17

STANDARDISED REGRESSION WEIGHTS

			Estimate
Change management	<---	Organisational culture	0.944
Interpersonal relations	<---	Organisational culture	0.983
Management process	<---	Organisational culture	0.995
Organisational strategy	<---	Organisational culture	0.949
Task systems	<---	Organisational culture	0.936
Technical environment	<---	Organisational culture	0.908
Social dysfunction	<---	Health	0.505
Anxiety and insomnia	<---	Health	0.828
Somatic symptoms	<---	Health	0.829
Innovation process	<---	Change management	0.874
Management of change	<---	Change management	0.899
Interpersonal relations (Diversity)	<---	Interpersonal relations	0.810
Interpersonal relations (Manager vs Worker)	<---	Interpersonal relations	0.808
Interpersonal Relations (Interdepartmental)	<---	Interpersonal relations	0.778
Training and development	<---	Interpersonal relations	0.773
Employee needs and objectives	<---	Management process	0.833
People management	<---	Management process	0.866
Formulate objectives	<---	Management process	0.816
Communication	<---	Management process	0.817
Decision making	<---	Management process	0.739
Core values	<---	Organisational strategy	0.860
Mission	<---	Organisational strategy	0.841
Goals	<---	Organisational strategy	0.882
Organisational structure	<---	Task systems	0.858
Leadership	<---	Task systems	0.717
External environment	<---	Technical environment	0.687
Physical environment	<---	Technical environment	0.606
Support services	<---	Technical environment	0.675

TABLE 5.18

SEM REGRESSION ANALYSIS: CAUSAL RELATIONSHIPS

Parameter			Estimate	Lower	Upper	P
Change management	<---	Organisational culture	0.944	0.925	0.955	0.005
Interpersonal relations	<---	Organisational culture	0.983	0.946	1.015	0.017
Management process	<---	Organisational culture	0.995	0.974	1.014	0.004
Organisational strategy	<---	Organisational culture	0.949	0.91	0.978	0.006
Task systems	<---	Organisational culture	0.936	0.914	0.95	0.005
Technical environment	<---	Organisational culture	0.908	0.782	0.995	0.01
Innovation process	<---	Change management	0.874	0.82	0.913	0.016
Management of change	<---	Change management	0.899	0.856	0.938	0.01
Interpersonal relations: Diversity	<---	Interpersonal relations	0.81	0.726	0.879	0.004
Interpersonal relations: Manager vs. worker	<---	Interpersonal relations	0.808	0.73	0.866	0.009
Interpersonal relations: Interdepartmental relations	<---	Interpersonal relations	0.768	0.694	0.834	0.005
Training and development	<---	Interpersonal relations	0.773	0.683	0.845	0.007
Employee needs and objectives	<---	Management process	0.833	0.776	0.878	0.016
People management	<---	Management process	0.866	0.804	0.903	0.011
Formulate objectives	<---	Management process	0.816	0.728	0.877	0.013
Communications	<---	Management process	0.817	0.724	0.87	0.016
Decision making	<---	Management process	0.739	0.592	0.82	0.014
Core values	<---	Organisational strategy	0.86	0.8	0.899	0.007
Mission	<---	Organisational strategy	0.841	0.751	0.893	0.011
Goals	<---	Organisational strategy	0.882	0.828	0.915	0.014
Organisation structure	<---	Task systems	0.858	0.811	0.902	0.005
Leadership	<---	Task systems	0.717	0.603	0.802	0.009
External environment	<---	Technical environment	0.687	0.57	0.78	0.017
Physical environment	<---	Technical environment	0.606	0.473	0.7	0.014
Support services	<---	Technical environment	0.675	0.528	0.777	0.011
Social dysfunction	<---	Health	0.505	0.331	0.656	0.006
Anxiety and insomnia	<---	Health	0.828	0.69	0.932	0.005
Somatic symptoms	<---	Health	0.829	0.716	0.905	0.018

Significant causal relationships (table 5.18) are indicated by p values below .05 or *** on the .001 level (two tailed). Two asterisks indicate a p value for the .1 level (10%), and one asterisk a p value for the .05 level (5%) (Garson 2009). The results indicate that change management, interpersonal relations, management processes, organisational strategy, task systems and technical environment had a significant causal relationship with organisational culture as the dependent variable. Innovation process and management of change had a significant causal relationship with change management as a factor of organisational culture. Diversity, manager versus worker, interdepartmental relations, and training and development had a significant causal relationship with interpersonal relations as a factor of organisational culture. Employee needs and objectives, people management, formulate objectives,

communication and decision making were a significant in terms of the causal relationship with management processes as a factor of organisational culture. Core values, mission and goals indicated a significant causal relationship with organisational strategy, as a factor of organisational culture. Organisational structure and leadership had a significant causal relationship with task systems as a factor of organisational culture. The external environment, physical environment and support services had a significant causal relationship with technical environment, as a factor of organisational culture. Social dysfunction, anxiety and insomnia as well as somatic symptoms indicated a significant causal relationship with health as the independent variable.

TABLE 5.19

CORRELATION IN SEM BETWEEN OCCUPATIONAL HEALTH AND ORGANISATIONAL CULTURE

Health <-->	Organisational culture	0.582

The correlation indicated above in table 5.19 is significant because the p value was below 0.05 at the .001 (1%) level. This confirms the theory that health can have an impact on organisational culture, or vice versa.

5.6.2 Goodness of fit

According to Hox and Bechger (1998), statistical tests for model fit do pose problems because they may vary with sample size. Owing to the sensitivity of chi-square statistics for sample size, researchers have proposed a variety of alternative fit indices to assess model fit. All goodness-of-fit models are some function of the chi-square and the degree of freedom. The majority of these fit indices not only consider the fit of the model, but also its simplicity. The different cut-off criteria for model fit applicable to this study are indicated in table 5.20.

TABLE 5.20

CUT-OFF CRITERIA FOR FIT CRITERIA RELATING TO THE STUDY

Indexes	Shorthand	General rule
Absolute or predictive fit		
Expected cross-validation index	ECVI	The smaller the better; good for model comparison (non-nested), not a single model
Incremental fit indices		
Comparative fit index	CFI	≥ .95 for acceptance
Normed fit index	NFI	≥ .95 for acceptance
Tucker Lewis index	TLI	≥ .95 or higher
Relative fit index	RFI	Close to 1 indicates a good fit
Incremental fit index	IFI	.90 acceptable level
Parsimonius fit		
Parsimony-adjusted CFI	PNFI	0 (no fit) to 1 (perfect fit). Compare with alternative model
Other		
Root mean square error of approximation	RMSEA	< .06 to .08 with confidence interval
Chi-square (CMIN)	$\chi 2$	Ratio of $\chi 2$ to df ≤ 2 or 3, useful for nested models/model trimming

Source: Adapted from Hooper, Coughlan, & Mullen (2008); Garson (2009); Schumacher & Lomax (2010).

TABLE 5.21

CMIN

Model	NPAR	CMIN	DF	P	CMIN/DF
Default model	49	414.368	204	.000	2.031
Saturated model	253	.000	0		
Independence model	22	3286.971	231	.000	14.229

The goodness-of-fit statistic, CMIN (minimum discrepancy), represents the likelihood ratio test statistic, most commonly expressed in a chi-square ($\chi 2$) statistic (Byrne 2001). In this study, the model chi-square was 2.031, which indicated that the model was acceptable. CMIN should be between 2 and 3 for an acceptable fit (Garson 2009). Given the sensitivity of the chi-square statistics for sample size, researchers use a variety of alternative fit indices to assess model fit.

TABLE 5.22

BASELINE COMPARISON

Model	NFI Delta1	RFI rho1	IFI Delta2	TLI rho2	CFI
Default model	.874	.857	.932	.922	.931
Saturated model	1.000		1.000		1.000
Independence model	.000	.000	.000	.000	.000

The comparative fit index (CFI) compares the existing model fit with a null model which assumes the indicator variables in the model are correlated (Garson, 2009). Schumacher and Lomax (2010) provide a rule of thumb for interpreting CFI. A CFI value of .90 to 95 is excellent. The CFI .931 is above the conventional .90 cut-off, which reflects an outstanding model fit.

The normed-fit index (NFI) assesses the model by comparing the χ2 value of the model with the χ2 of the null model (Hooper et al., 2008). NFI values above .95 are good (Schumacher & Lomax in Garson 2009) and between .90 and .95. acceptable. Values below .90 indicate a need to respecify the model. The NFI value of .874 is below the conventional .90 cut-off score. Sample size has a significant effect on NFI and cannot be solely relied upon (Hooper et al., 2008). The incremental fit index (IFI), however, is above the .90 acceptable level. The IFI value of .932 reflects an adequate fit.

The relative fit index (RFI), also known as RHO1, is not guaranteed to vary from 0. to 1. An RFI close to 1 indicates a good fit (Garson, 2009). According to table 5.22, the RFI is .857, which indicates an adequate fit.

The cut-off scores of the Tucker-Lewis index (TLI) also known as the NNFI can be as low as .80 because TLI tends to run lower than CFI (Garson, 2009). A widely accepted cut-off score for a good model fit is above .95 (Hooper et al., 2008). The TLI value is .922, which reflects an adequate fit.

TABLE 5.23

PARSIMONY-ADJUSTED MEASURES

Model	PRATIO	PNFI	PCFI
Default model	.883	.772	.822
Saturated model	.000	.000	.000
Independence model	1.000	.000	.000

The parsimony-normed fit index (PNFI) addresses the issue of parsimony by taking the complexity of the model into account in its assessment of goodness of fit (Byrne, 1998). In this study, the parsimony goodness of fit (PCFI = .883) was higher than >.50, which indicated a good parsimonious fit (a model with relatively few parameters to estimate in relation to the number of variables and relationships in the model).

TABLE 5.24

RMSEA

Model	RMSEA	LO 90	HI 90	PCLOSE
Default model	.076	.065	.086	.000
Independence model	.272	.264	.280	.000

According to Byrne (2001), the root square error of approximation (RMSEA) takes into account the error of approximation in the population. A good model fit for RMSEA is less than or equal to.05. According to table 5.24, there is an adequate fit of RMSEA of less or equal to 0.8. (Garson, 2009). The hypothesised model (RMSEA=.076) indicated an adequate model fit.

TABLE 5.25

ECVI

Model	ECVI	LO 90	HI 90	MECVI
Default model	2.862	2.559	3.209	2.943
Saturated model	2.827	2.827	2.827	3.244
Independence model	18.609	17.594	19.665	18.645

The expected cross-validation index (ECVI) is used to assess, in a single sample, the likelihood that the model cross-validates across similar-sized samples from the same population (Browne & Cudeck in Byrne 2001). ECVI coefficients can take on any value because there is no determined appropriate range of values. The model with the smallest ECVI value exhibits the greatest potential for replication (Byrne, 2001). Given the lower ECVI value for the hypothesised model (ECVI = 2.862), compared to the saturated (ECVI = 2.827) and independence model (ECVI = 18.609), one can conclude that the model represented the best fit for the data. Given the above interpretation of the various indices, the researcher concluded that the proposed model could be accepted.

5.7 MULTIPLE REGRESSION ANALYSIS

Multiple regression analysis was performed to determine the degree to which different dimensions predict occupational health. The purpose was to obtain further confirmation of the conclusions drawn from the SEM.

TABLE 5.26
MULTIPLE REGRESSION ANALYSIS

Model	Standardised coefficients			Collinearity statistics	
	Beta	T	Sig.	Tolerance	VIF
1 (Constant)		7.851	.000		
Change management	.088	.539	.590	.134	7.477
Interpersonal relations	-.170	-.1275	.204	.200	4.997
Management process	-.013	-.078	.938	.132	7.590
Organisational strategy	.299	2.312	.022	.212	4.715
Task systems	.327	3.248	.001	.352	2.845
Technical environment	.150	1.613	.109	.411	2.433

Dependent variable: health

The following dimensions appear to be significant (p-values less than a .05 value) and would predict occupational health, which means that should an organisation focus on these two statements, occupational health could be improved.

- organisational strategy
- task systems

Furthermore, the results of the multiple regression analysis indicated that interpersonal relations (beta = -.170) and management processes (beta = -.013) had a negative impact on occupational health.

5.8 CONCLUSION

This chapter addressed the aims of the study. The existing organisational culture and occupational health status were discussed.

Factor analysis was conducted to ensure the reliability of the questionnaires. The results indicated that the General Health Questionnaire was reliable (Cronbach alpha= .912). The Culture Questionnaire was also confirmed to be reliable (Cronbach alpha between .699 & .967). SEM was used to establish the existence of a possible relationship between organisational culture and occupational health Correlation between the variables was confirmed.

The regression model confirmed that organisational strategy and task systems would predict health. Furthermore, it was found that interpersonal relations and management processes have a negative impact on occupational health. The conclusions, limitations and recommendations will be discussed in chapter 6.

CHAPTER 6

CONCLUSIONS, LIMITATIONS AND RECOMMENDATIONS

6.1 INTRODUCTION

The aim of this chapter is to formulate conclusions on the basis of the literature review and the results of the empirical research. The limitations will then be discussed and recommendations made for further research.

6.2 CONCLUSIONS

The following conclusions were drawn on the basis of the literature and empirical research:

6.2.1 Conclusions relating to the literature review

The conclusions pertaining to organisational culture and occupational health in terms of the aims formulated in chapter 1, will now be discussed.

6.2.1.1 First aim

The first aim, namely to define or conceptualise organisational culture, was achieved in chapter 2. The researcher concluded that most of the definitions of organisational culture indicated similarities and consensus in the sense that the definition of organisational culture includes the shared values, beliefs and basic assumptions held by organisational staff members. The following definition was used for the purpose of the study: “Organisational culture is an integrated pattern of behaviour, which is unique to a particular organisation and which originated as a result of the survival process and interaction with its environment. Culture directs the organisation to goal attainment. Newly appointed employees must be taught what the correct way of behaving is” (Martins, 1989, p.45).

The importance of organisational culture was discussed. The literature study revealed that organisational culture is important for internal and external adaptation.

Representative models of organisational culture were then outlined, referring specifically to the organisational models of Schein (1992; 1987), Hofstede's four dimensions (1996), Kotter's model (1992), Denison's model (2005) and the model of Martins (2006), which was used to direct the study. The different dimensions of organisational culture were then explored by comparing various literature sources.

The difference between strong and weak cultures was highlighted, after which the focus shifted to change management. Interventions focus on change includes artefacts, norms, values and basic assumptions which are more or less shaped by organisation members.

6.2.1.2 Second aim

The second aim, namely to define occupational health, was achieved in chapter 2. In 1950, the World Health Organisation defined occupational health as follows: "Occupational health should aim at: the promotion and maintenance of the highest degree of physical, mental and social well-being of workers in all occupations; the prevention amongst workers of departures from health caused by their working conditions; the protection of workers in their employment from risks resulting from factors adverse to health; the placing and maintenance of the worker in an occupational environment adapted to his physiological and psychological capabilities; and, to summarize, the adaptation of work to man and of each man to his job" (Stellman in Sieberhagen, Rothman, & Pienaar, 2009).

The importance of occupational health was described, and the researcher concluded that health-related symptoms can have an impact on individuals, which may cause work-related problems or even specific problems in certain aspects of a position/job.

Although the aim of the study was not to test occupational health models, a few of these models were highlighted, namely the models of Bergh and Theron (2001) and Winnubst and Diekstra (1998), the work-stress model, the person-environment fit model and the effort-recovery model. On the basis of the literature study, the researcher concluded that factors in the working environment could have an impact on an individuals' health.

Lastly, change management in occupational health was discussed. It was concluded that staff members should be involved during the planning of an intervention. The culture of the organisation should also be taken into consideration because it may influence the change management process.

6.2.1.3 Third aim

The third aim was to discuss the theoretical relationship between organisational culture and occupational health. Although limited literature was available on the topic, it could be concluded that, according to the World Health Organisation (WHO, 2003), that organisational culture is also concerned with how problems are recognised and solved. Organisational culture can affect what is experienced as stressful, how the experience translates into health difficulties, how both health and stress are reported and how the organisation responds to these reports.

6.2.2 Conclusions relating to the empirical study

The conclusions pertaining to the empirical study of organisational culture and occupational health, in terms of the aims formulated in chapter 1, will now be discussed.

6.2.2.1 First aim

The first empirical aim was to determine the effect of general health factors in the work environment. The General Health Questionnaire (GHQ-28) of Goldberg (1978) was used to gather information on health in the organisation. The results showed that the overall positive dimensions were as follows:

- Have you recently felt nervous and strung up all the time? (mean of 3.34, and 90.2% felt the statement was positive)
- Have you recently had a hot or cold spell? (mean of 3.49, and 90.2% felt the statement was positive)
- Have you recently felt that you are playing a useful part in things? (mean of 3.44, and 88.8% felt the statement was positive)
- Have you recently been scared or panicky for no good reason? (mean of 3.44, and 86.7% felt the statement was positive)

- Have you recently felt on the whole that you were doing things well? (mean of 3.31, and 41.2% felt the statement was positive)

The overall negative dimensions were as follows:

- Have you recently lost much sleep because of worry? (mean of 3.00, and 27.3% felt the statement was challenging)
- Have you recently felt constantly under strain? (mean of 2.93, and 32% felt the statement was challenging)
- Have you recently been able to enjoy your normal day-to-day activities? (mean of 2.92, and 21.9% felt the statement was challenging).

The overall health dimension could be described as positive owing to the overall mean score of 3.18.

6.2.2.2 Second aim

The second empirical aim was to determine the existing organisation culture in the organisation. The results were determined according to the South African Culture Instrument (SACI). The results showed that the overall strengths of the organisation were as follows:

- *Leadership* (mean of 3.81 and 72.5% favourable). The respondents indicated that they get along with their immediate manager/supervisor (79.8%) and that their immediate manager/supervisor was competent and knew his/her job (79.8%).
- *Physical environment* (mean of 68.7%, favourable). This relates to the way the staff dress to support the company's image (72.2%) and the physical appearance of the building, offices, equipment, furniture and the reception area (71.4%).

- *Core values* (mean of 3.54, and 61.2% favourable). This refers specifically to the fact that staff felt that the company provides products/services that are totally free from any discrimination (75.6%). The participants also indicated that staff respect the property and possessions of the company and thus protect them and do not take anything belonging to the company.
- *Decision making* (mean of 3.45, and 59.7% favourable). The participants indicated that their work environment could be described as participative (73.6%).
- *Mission* (mean of 3.44, and 57.8% favourable). The respondents indicated that they fully understood the company's mission (70.3%).

The results of the Culture Questionnaire further indicated that the three developmental areas included the following:

- *Communication* (mean of 3.02, and 37.7% strongly disagreed). In particular, the staff felt that they did not know what the other divisions were doing.
- *People management* (mean of 3.13, and 26.1% strongly disagreed). The staff felt that the remuneration system was unfair, and that performance evaluations were not followed by development interviews, during which training and development actions could be jointly planned with employees.
- *External environment* (mean of 3.10 and 18.3% strongly disagreed). The staff felt that the firm did not share its successes with the community, it was not involved with the community or that the environment should be respected.

The overall organisational culture dimension could be described as positive owing to the overall mean score of 3.39.

6.2.2.3 Third aim

The third aim was to establish the existence of a possible statistical significant relationship between organisational culture and occupational health. For the purpose of establishing the relationship, SEM was used. SEM involves the following two phases: 1) the casual processes under investigation are represented by a series of structural equations; and (2) these structural relations can be modelled pictorially to provide a clearer conceptualisation of the theory being studied (Byrne, 2001). The correlation statistics showed significance because the p value was below 0.05 at the .001 (1%) level. This confirmed the theory that health can have an impact on organisational culture, or vice versa. The model displayed the impact of health and organisational culture on its various subdimensions. The indices indicated that the developed model could be accepted, which confirmed that health can have an impact on organisational culture or vice versa.

The multiple regression analysis results showed that organisational strategy and task systems, as dimensions of organisational culture, predict occupational health the most.

6.3 LIMITATIONS

The limitations of the literature study and the empirical study are outlined below.

6.3.1 Limitations of the literature review

The following limitations were evident:

- There are many different models of organisational culture.
- There is a paucity of research available on the relationship between organisational culture and organisational health. The researcher could not find any similar study to confirm the results of this study.

6.3.2 Limitations of the empirical investigation

The limitations of the empirical investigation are outlined below.

6.3.2.1 Sample size

The research was conducted in a single organisation. The results can thus not be generalised to the broader populations of IT institutions or any other organisation. A sample size of 200 respondents is usually recommended for SEM. This study had a sample of 184 respondents, which could have affected the results.

6.3.2.2 Measuring instrument

Only 21 questions of the General Health Questionnaire (GHQ-28) were used, owing to the exclusion of psychiatric symptoms. This should be taken into consideration when interpreting the data.

6.4 RECOMMENDATIONS

Despite the limitations of the current research, the following recommendations were formulated for the field of industrial Psychology and further research relating to this topic and thus fulfilling the fourth empirical aim:

6.4.1 Recommendations for the participating organisation

It is recommended that managers should receive the necessary training to understand the concept of organisational culture and the impact of occupational health on the organisation. Cummings and Worley (2005, p. 665) define an intervention as “any action on the part of a change agent. Interventions carry the implication that the action is planned and deliberate and presumably functional. Many suggest that an OD intervention requires valid information, free choice, and a high degree of ownership by the client systems of the course action”.

The following individual, group and organisational interventions are recommended to address the concerns in the organisation.

6.4.2 Individual

Coaching and training and third-party interventions are suggested. The results show that employees in the organisation are not adequately trained and do not receive the necessary feedback to improve their performance. Coaching is action oriented and involves helping the employee to understand how current behaviour influences the situation. Interventions could be made at all levels, but should start with management before intervening at lower levels. This type of intervention would also assist with career development. Third-party interventions could focus on conflicts that arise between two or more people in the organisation. Work-life balance interventions could help staff to manage the interface between work and paid employment and all the work and responsibilities associated with a person's life.

6.4.3 Group interventions

Team building and goal setting in the organisation would be valuable. Team building helps groups to become more effective in tasks, diagnoses group processes and finds solutions to problems. Furthermore, goal setting involves setting clear and challenging goals. Employees in the organisation could be motivated to make suggestions and be rewarded accordingly if their suggestions are implemented.

6.4.4 Organisational interventions

Intergroup relations and interventions in large groups could be used to improve interaction and provide the opportunity to address problems. Intergroup relations involve a consultant providing assistance by helping individuals to understand the cause of conflict and choose appropriate solutions. Interventions in large groups, however, would create awareness of development areas and specify direction for future actions.

6.4.5 Recommendations for further research

Owing to the limitations of the study and specifically the fact that limited literature was available on the relationship between organisational culture and occupational health, it is recommended that further research on this topic should be conducted. In an attempt to address some of the limitations, it is further recommended that research on this topic should be conducted in a number of organisations, across different industries/environments.

It would also be helpful to include questions on psychiatric symptoms in any further research.

6.5 CHAPTER SUMMARY

The research aim was to determine whether a relationship exists between organisational culture and occupational health. The findings of the empirical research were presented in chapter 5 and the conclusions relating to the specific aims of both the literature review and empirical study were discussed. The limitations of the study, for both the literature study and empirical study, were identified. Recommendations were made for possible future research on this topic.

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APPENDIX A: Biographical, general health and culture questionnaire